

**October 12, 2005**

**MEMORANDUM**

**UTAH DEPARTMENT OF TRANSPORTATION**

**TO:** Jim McMinimee, P.E., Chairman

**FROM:** Barry Axelrod  
Recorder, Standards Committee

**SUBJECT:** Standards Committee Meeting Minutes and Next Meeting

The next meeting has been scheduled for Thursday, October 27, 2005 at 8:00 a.m., in the main 1st floor conference room of the Rampton Complex.

<b>Item</b>	<b>Remarks</b>	<b>Sponsor</b>
1. Minutes of August 25, 2005	For approval	Barry Axelrod
2. Supplemental Specification 00725M, Scope of Work	For approval	Jeff Saddler
3. Standard Drawing BA 4D, W-Beam Guardrail Anchor Type 1	For approval	Glenn Schulte
4. Standard Drawing BA 4Q, W-Beam Median Barrier Transition	For approval	Glenn Schulte
5. Standard Drawings, CC Series, See Listing	For approval	Glenn Schulte
6. Standard Drawing DG 5, Plastic Pipe Culvert Bedding	For approval	Michael Fazio
7. Supplemental Specification 02633 (new section), Precast Concrete Drainage Structures	For approval	Michael Fazio
8. Pipe Backfill	For discussion	Todd Jensen
9. Passing Sight Distance - AASHTO vs MUTCD	For approval	Richard Miller
10. Deviating from Standards	For discussion	Richard Miller
11. Painted Cattleguard and Rumble Strip	For discussion	Ab Wakil John Leonard
12. Review of Assignment/Action Log	For review	Jim McMinimee
13. Meeting Improvements (on-going agenda item)	For discussion	Jim McMinimee
14. Other Business		
Discuss schedule for December 2005 and all of 2006.	For discussion	Barry Axelrod

JCM/ba  
Attachments

cc:

Cory Pope Director, Region One	Stan Burns Engineering Services	Richard Miller Standards
Randy Park Director, Region Two	Todd Jensen Structures	Barry Axelrod Standards
Tracy Conti Director, Region Three	Darrell Giannonatti Construction	Patti Charles Standards
Dal Hawks Director, Region Four	Tim Biel Materials	Shana Lindsey Research
	Richard Clarke Maintenance	Carlos Machado and Todd Emery FHWA
	Robert Hull Traffic and Safety	Mont Wilson AGC
		Tyler Yorgason ACEC

## Agenda Listing

### **Item 5:**

- CC 5A      Grading & Placement Detail Crash Cushion Type C “Brakemaster”
- CC 5B      Grading & Placement Detail Crash Cushion Type C “C.A.T.”
- CC 5C      Grading & Placement Detail Crash Cushion Type C “FLEAT-MT”

August 25, 2005

A regular meeting of the Standards Committee convened at 8:00 am, Thursday, August 25, 2005, in the 1st floor conference room of the Rampton Complex.

Members Present:

Jim McMinimee	Project Development	Chairman
Richard Miller	Standards and Specifications	Secretary
Barry Axelrod	Standards and Specifications	Recorder
Randy Park	Region 2	Member
Stan Burns	Engineering Services	Member
Darrell Giannonatti	Construction	Member
Todd Jensen	Structures	Member
John Leonard for Robert Hull	Safety	Member
Richard Clarke	Maintenance	Member
Tim Biel	Materials	Member
Todd Emery	FHWA	Advisory Member
Abdi Fatemi for Mont Wilson	AGC	Advisory Member

Members Absent:

Robert Hull	Safety	Member
Carlos Machado	FHWA	Advisory Member
Mont Wilson	AGC	Advisory Member
Tyler Yorgason	ACEC	Advisory Member

Staff:

Barry Axelrod	Standards and Specifications
Patti Charles	Standards and Specifications
Karl Verhaeren	Region 4 Construction
Shana Lindsey	Research
Robert Strong	TOC
Terry Johnson	Environmental
Glenn Schulte	Traffic and Safety
Scott Jones	Traffic and Safety
Tony Lau	Preconstruction

Visitors:

Roland Stanger	FHWA
Blake Hansen	Transcore (TOC)

## Standards Committee Meeting

Minutes of the August 25, 2005 meeting:

1. Minutes of June 30, 2005 meeting were approved as written.

**Motion:** Richard Clarke made a motion to accept the minutes as written. Seconded by Tim Biel. Passed unanimously.

2. Supplemental Specifications 01571, Temporary Environmental Controls and 01574M Environmental Control Supervisor and Standard Drawings EN 1, Temporary Erosion Control (Check Dams); EN 2, Temporary Erosion Control (Silt Fence); EN 3, Temporary Erosion Control (Slope Drain And Temporary Berm); EN 4, Temporary Erosion Control (Drop Inlet Barriers); EN 5, Temporary Erosion Control (Pipe Inlet And Curb Inlet Barriers); EN 6 Temporary Erosion Control (Sediment Trap And Stabilized Construction Entrance); EN 7 Temporary Erosion Control (Straw Bale Barrier) (Agenda Item 2) - Presented by Terry Johnson.

Terry said that he took the comments from the last meeting to make changes to the supplemental specifications and standard drawings. He said there had been a lot of discussion on standard drawing EN 6 dealing with the stabilized construction entrance. He said previously the rock size was 2 to 6 inches but he changed the drawing to 2 to 3 inches. Terry said he didn't go with the untreated base as suggested by some at the last meeting because the untreated base does not do the job of removing the mud from the tires. He said some type of rock is needed.

Discussion points were:

- Jim asked for comments on Section 01571.
- Commenting on Articles 3.4 and 3.5 Todd Jensen said the language might need to be strengthened. He said once seeded it seems the Contractor forgets about the area. He said that is when we have the most problems with the Contractor not keeping the erosion control measures in place. Todd asked if a reference to establishment needed to be added. Jim commented on how the Contractor would bid the item if left as discretionary.
- Ab said looking at it from a Contractor point of view the way it is worded the Contractor is done. He said if the Contractor has to come back then it has to be paid for.
- Jim asked for suggestions. Ab commented about paying the Contractor for cleanup. Ab also commented about covering it as incidental and that the Contractor would know that it is not paid for. Terry said he would update the wording based on incidental work.

- Richard commented that the reference to “Approved list” in Article 2.1 A should be “Accepted Products List.”
- Being no additional comments on Section 01571 Jim moved on to the discussion of Section 01574.
- There was a comment about a font problem. Barry said this is related to various printers reading the Adobe PDF file fonts.
- The subject of when the Environmental Control Supervisor is used was brought up. Terry said some of the confusion comes from the current Department Special Provision for Section 01571 that is used on small project where the supervisor is not used but is being used in place of the current standard.
- Karl commented about measurement and payment having a pay item or not still causes a dilemma. Karl said there are a lot of things we require that we don’t necessarily have a pay item for. He said some clarification is still needed as to whether the Environmental Control Supervisor applies or not. He suggested that if there isn’t a bid item then it be considered incidental.
- Jim asked how do we differentiate between a job that requires some environmental control management and one that requires a supervisor. Terry said the Landscape Architect is involved and makes the call. Jim asked how the Project Manager knows that is something he needs to think about. Terry said the information would be in a manual of instruction they are working on. Darrell said it is important to make that differentiation and that there should be a line item to pay for it.
- Darrell asked Ab if he agreed. Ab said no but it was a good point. Karl said this is probably complicated because we have measurement and payment as a completely different section.
- Karl suggested adding something to the fact that when no bid item is included in the proposal for Environmental Control Supervisor then the section does not apply. Several in attendance agreed. There was no disagreement.
- Being no further discussion on the two supplemental specifications Jim moved on to the EN Series drawings. There was no discussion on the drawings. Jim asked if anyone had any other discussion items on Terry’s items.
- Because the item was up for approval Jim asked Terry to recap what he needed to work on with respect to the item. Terry said they would reference the approved products as discussed. He said on the Environmental Control Supervisor item a statement on no bid item would be added. He said he would check to make sure all bid item titles matched the specification and that a statement on incidental work would be added to Section 01571, Article 3.5.

**Motion:** Darrell Giannonatti made a motion to approve Supplemental Specifications 01571 and 01574 as discussed and modified and Standard Drawings EN 1 through EN 7 as presented. Seconded by Tim Biel. Passed unanimously.

3. Supplemental Specification 00555M, Prosecution and Progress, Limits of Operation (Agenda Item 3) – Presented by John Leonard.

John said some minor changes were made to the proposal since being submitted to the Committee. He handed out an updated version. He said the specification was requested by senior management in response to incidences on the highways including one with a fatality. The change would provide coordination between those doing the work and the Department. He explained how this would be done based on the proposal. John said this applies to everybody, not just contractors. He went on to explain the details of the proposal.

John also discussed peak hours and holidays as it applied to the change. He said the peak hours vary depending on the region. He said events were added to cover sporting events for example. John said flexibility on the duration was added to cover the volume of traffic.

John said in discussing this with Richard Miller the subject of holiday periods came up. John said Section 00570 defines holiday periods. During that discussion Richard pointed out that UDOT Policy 08-5 (Work Zone Safety and Mobility) is much more restrictive for the closure periods. John handed out a revised supplemental specification proposal with the holidays and time periods listed. He asked if it would be reasonable to put that information in Section 00555 as proposed.

Discussion points were:

- Darrell asked about a conflict in peak hours and what is done in that case. John said the designer has the option of using a special provision to modify the hours.
- Shana asked how this would apply to Maintenance operations. John said the intent is for moving equipment from one side of the road to the other.
- There was some confusion on the version being discussed. Jim asked for a clarification. John said “kind of both.” He said the first intent was to bring up the first sheet that was handed out, the one with just the basic traffic slow down. The second version added the holidays and time periods. John said on that version the text in black is from the currently approved standard.
- Referring to the part of the change that says “determine period of time,” Karl said he wasn’t sure what that is doing for us. John explained the closures for each day of the week as it related to the day the holiday falls on.

- Karl said he thought this information should be in Traffic Control and not necessarily in Limits of Operations. Referring to the hours of operation Karl said this would be a major impact on a Contractor's work to have both lanes of traffic open on holidays. He said depending on the type of operation or reconstruction it wouldn't be practical to have all existing lanes open on a holiday.
- Randy asked John to review the reason for this change in the first place. John briefly explained the reason for the change. Randy commented that he thought we are covering more than what was required. John said we discuss holidays differently in different documents so he was bring that up as well.
- John said the intent is the original recommendation and that is the one he is asking be approved. The second recommendation is something that may need to be looked at in the future.
- Darrell asked Ab if he found the recommendation straight forward and understandable. Ab said this change is causing more confusion. Ab asked how payment would be made and if it is part of traffic control. He said if it is then it should be moved to the traffic control section.
- Jim asked if this couldn't be better handled as a site specific issue. He said if you are going to do this then come up with a plan and have the region traffic engineer approve it. He said that way you have the opportunity to address all the issues instead of trying to cover them in a specification. Currently work zone traffic control is covered by Section 01554. Jim asked if it would better fit there.
- Glenn commented that according to the specification the work zone traffic control plan is not approved by the Department. He said that is left strictly up to the Contractor. UDOT reviews the plan but does not approve it. Glenn said sometimes the plans get to the traffic engineer and sometimes they don't. Jim said that sounded like a good argument for treating the slow down issue exactly the same way. Jim asked why we don't approve the Traffic Control Plan, thinking it was a liability issue. Glenn said that in the past whenever our designers came up with a Traffic Control Plan the Contractor always had a better idea. John added that if we approved something that didn't meet standards then the Contractor would ask for more money to bring it up to standards.
- Randy following up on Shana's comments said he is worried about how Maintenance would handle this in relation to rolling closures. John and Karl went on to discuss various examples.

- John asked Richard Clarke what he saw as the Maintenance impacts if this change was done in Section 01554 instead of 00555. Jim said he is still not comfortable with the prescriptive parts of the recommendation. Jim said he was hoping we could find a way that would allow a lot more flexibility and still get the notification the Department wants. Jim said that is what John and Carlos are really after.
- Shana suggested a guide. John said senior management didn't want a guide.
- Karl suggested making the Resident Engineer (RE) the approval person. John didn't think the RE would be the appropriate person because he doesn't always see the whole picture for the system and what is going on.
- Randy agreed with Karl, saying he thought the RE should have the approval. He said our REs don't work in a vacuum. They should be the one working with the traffic engineer.
- Someone commented that this change looks like it is for scheduled events. What about unscheduled events? John said you do what you can within the framework you have. John said we can't cover everything but if the Contractor knows they are going to move a crane across the highway they generally know that in advance.
- Ab asked if it could be made part of the Traffic Control Plan, adding the UDOT already approves the plan. He said the Contractor doesn't go to work without the approved Traffic Control Plan. John said this was addressed earlier, saying there is no such thing as an approved Traffic Control Plan. John went on to explain the process for the Traffic Control Plan. Ab disagreed saying they get approval in the Preconstruction meeting. Ab went on to explain the process taken by the Contractor during construction in relation to traffic control. He said it has to be very simple and part of the Traffic Control Plan, adding that approval is another issue.
- Jim said based on the half hour discussion it is a good signal that the Committee isn't ready to approve this item unless someone would like to make a motion.
- John recapped. He said it is too restrictive, more of a procedure than a specification. Next he said it may affect our forces in terms of how they do their work. John said the Contractor would put it in the Traffic Control Plan at the beginning. Jim added that the same process could be used. John said the bottom line is that if it is a scheduled event then the Contractor should provide notification to the Department.

**Action Item:** John Leonard with coordinate the required action to have the process placed in the proper location, to the detail necessary and bring the recommendation to the Standards Committee for approval.

4. Supplemental Specifications 13551M, General ATMS Requirements; 13552M, Ramp Meter Signals and Signing; 13553M, ATMS Conduit; 13554M, Polymer Concrete Junction Box; 13555M, ATMS Cabinet; 13556, Closed Circuit Television (CCTV) Assembly; 13557M, Variable Message Sign; 13561M, ATMS Power Service; 13594M, Fiber Optic Communication (Agenda Item 9) – Presented by Robert Strong.

Robert said since the last meeting they have gone through all the proposed changes and have worked with Structures on updates related to that area. He said they also talked to the people at FHWA. He said some of the recommendations and changes have been made. Robert said one area from last time dealt with the references.

Blake Hansen from Transcor continued with the next part of the discussion, covering their changes.

Section 13551M: Blake said they updated the references area to show AASHTO references instead of ASTM. He said they clarified Article 2.1 Paragraph A2.

Discussion points were:

- Todd said based on his familiarity with the luminaire document referenced on the last page of Section 13551 he thought it was more of a design specification rather than an installation one. He asked what did it show about installing anchor bolts. Blake said there are some installation instructions in the document.
- Todd recommended putting the requirement directly into the specification if it is small enough instead of referencing the document so that the Contractor doesn't have to go find the document. Blake said one of the standard drawings has the information. Todd still thought a paragraph from the document should be put in the specification. Robert said the document has more than just the torque information, adding that it covers complete installation, the type of material, and the placement. He said the Contractor can go to the document to learn more than what is covered in the drawing.
- Karl said he wondered what the value is of including the reference in the specification if the Contractor doesn't even read the specification. Robert said he has found that suppliers read the specifications more than the Contractor. Todd said that when the specification states "install" then it is more the Contractor than it is the supplier. Robert commented on what the Contractor might be using the reference for. Todd said he still thought the information could be duplicated in the specification.

- Barry said while that might work for this specification, what about all the other sections. The current specification book of over 700 pages could double or triple in size if we did this. He said this is a reformatting issue and this meeting may not be the place to discuss this. Barry said they have never done that. Robert said just from an ATMS standpoint if this were done the book as Barry indicated would be three times the size. Robert added that if the Engineer or Contractor wants more detail then the reference has been provided. He said the plans tell them how to do the specific work. Someone commented that the reference could be updated, making the specification outdated.
- There was no further discussion on 13551M.

Blake went on to discuss Section 13552M. He said they reviewed the references for currency and applicability. He said that based on discussion last time the reference to a “red” LED in Article 2.2, paragraph A was changed to “white.” Robert went on to provide some explanation, indicating “red” is only used for stop. He referred to discussions with the Highway Patrol when first using this particular item. Robert said according to FHWA, “white” is used around the country for enforcement at intersections. He said the ramp meter is a different breed and that he couldn’t find any written information on this subject. In response to a comment Robert said many states aren’t even using the enforcement light because only one lane is being monitored.

Robert said his recommendation is to turn it over to the Traffic Engineering Panel for a decision, adding that in the mean time we stay with the “red” light.

Discussion points were:

- Jim said if we approve this section today then it is with the “red” light. Robert said this impacts future construction and current operations so we should wait until the Traffic Engineering Panel makes a decision.
- Todd Emery said he would have to make sure his office is alright with this before approving it. Roland said he made the comment and was fine with it.
- Discussion continued on the usage of the light and the colors.
- Blake commented that the proposal is to leave the light as is and not change anything relating to this light.
- Todd Jensen said he had a question on 3.2 A. He asked why we are referring to an outside document in this case when one of our own specifications covers this. Blake said the same thing was done in the Traffic Signal specification.
- Referring to 2.4 B, John said the word “modified” doesn’t apply in this case.

Section 13553M was covered next. Blake said the update from the last meeting was to make sure the sawing cutting reference was correct. He said it does fit what we are doing.

Discussion points were:

- Todd Jensen asked if there is an AASHTO reference for the first ASTM reference. Blake said no.
- Karl asked about the sawing cutting and if another method would be allowed. The title of the referenced section is “Pavement Cutting.” Blake said he didn’t have a problem making the statement more generic.

Section 13554M was covered next. Blake said there were no changes from the last meeting. He said he checked the references to make sure there were no AASHTO equivalents.

Discussion points were:

- Referring to Article 3.1, Paragraph M, Todd Jensen suggested adding a specification reference. Barry pointed out that if a new related section is added then the Related Sections article needs to be updated as well.
- Referring to the next paragraph Todd said he wasn’t sure if the statement clearly conveyed the proper meaning. What kind of expansion joint material? Blake said this section was modified to be consistent with the standard drawing. Blake added that last time AGC requested that the specific material be removed and the reference show just “expansion joint material.” A suggestion was made to change “Department approved” to “Engineer approved.”
- Jim asked about the GPS requirement in paragraph O. He said in looking back to Section 13551 he asked how or where are the coordinates to be recorded. He said he didn’t understand the submittal process, adding that it is part of the as-built drawings. Jim indicated the statement didn’t say that. Karl said if it a requirement somewhere else for as-builts why show it here again. The paragraph will be removed.

Section 13555M was covered next. Blake said the main change was replacing ASTM references with AASHTO references.

Discussion points were:

- Barry said in 1.3 E just the guide should be listed and not the chapter references. The chapters are referenced in the body of the specification.
- There were no other comments on this section.

Section 13556 was covered next. Blake said this section had the biggest impact in changing from ASTM to AASHTO. He said a lot of what had been called out for installation of materials didn't matter because the bolts and anchor bolts are state furnished. He said a lot of that information was removed. The supplemental changed from a modification ("M") to a complete replacement. s

Discussion points were:

- Todd Jensen questioned the title of Section 03211. Barry checked the specification book and said the title was correct.
- John asked why the Roadside Design Guide was not referenced in this section. Blake said he would have to check.
- Todd asked about the type of foundation in reference to Article 2.2. He suggested a reference to the standard specification. Todd also asked about the non-shrink grout and what it referred too. Robert Strong explained the usage.
- Referring to Article 3.2, Todd said he had the same comment about the reference. He suggested referring to the standard specification.
- In reference to Article 3.4, Todd questioned the availability of guidance on the products being applied. He asked if the statement was clear enough so that the Contractor would know what we are looking for. Blake said that was not something he investigated as part of this revision, indicating that requirement did not change from the original standard. Robert Strong agreed that they needed to be more specific.

Section 13557M was covered next. Blake said the references were changed here as well.

Discussion points were:

- Referring to Article 1.3, Paragraph G, Todd said the ASTM A 36 reference should be AASHTO M 270, Grade 36. Todd said he thought there were AASHTO references for the other ASTM references as well.
- Todd said he wasn't sure what was being looked for in the addition to Article 3.1 Paragraph H. In his comments he referred to Article 2.1 VMS Foundations at the top of the page, saying that 3.1 H was under this article. This may have been a way to direct the Committee to the right location on the page and not a comment that the two were tied together. Todd said the paragraph was just a generic statement and he wasn't sure what the Contractor should be looking for in the referenced guide.
- Blake said they had looked at all the references and hadn't felt comfortable changing the references. He didn't think there were equivalents.

Section 13561M was covered next. Blake said there were no changes from last time. He said the same for Section 13594M.

Discussion points were:

- Being at the end of the ATMS specifications Jim asked if there were any other comments.
- There were no further comments.

**Motion:** Tim Biel made a motion to approve Supplemental Specifications 13551M, 13552M, 13553M, 13554M, 13555M, 13556, 13557M, 13561M, and 13594M as discussed and modified. Seconded by Todd Jensen.

Discussion points were:

- Todd Emery said his only concern was that their ATMS person hadn't had time to look at some of the changes. He referred specifically to the "white" versus "red" enforcement light. He said he didn't see it as an issue but didn't know what the program person would have to say. Robert Strong said it was discussed during his meeting with FHWA where he indicated that the Traffic Engineering Panel look into changing the light color. The FHWA program person didn't have any comments at that time. Robert said that was why he suggested earlier leaving the light color unchanged. Barry said the current Blue Book has the light color as red. He pointed out that the wording in the supplemental is exactly the same as in the current standard specification and the only difference is the paragraph letter. Jim said the approval today would be to leave the color as red. Barry said all we are doing is changing the draft back to the way it is in the book.

**Motion:** Being no further comments Jim called the question. Passed unanimously.

Barry reminded Robert and Blake of the publishing requirement and suspense date. Items not received on time may have to wait until the next publishing cycle. He said they could work out a possible delay.

5. Standards Committee Policy 08A5-1, Standards Committee (Agenda Item 5) - Presented by Barry Axelrod.

Barry said the policy had already been approved in April 2005 but a statement needed to be added with respect to the FHWA approval process. He said that Jim wanted him to provide some background on the process.

**Process:** In the past even though the FHWA representative attended the meeting a post meeting package had to be sent to FHWA for review and approval. If there was a problem or issue that would impact their approval we wouldn't know it until well after publication of the change. This could be the case even though a representative was at the meeting and had a chance to comment before a committee vote. The new procedure is more effective and provides a better review process.

Barry covered the updates to the current policy. He said a statement was added to the policy portion stating "this approval is provided in a letter from FHWA presented to the Standards Committee at the scheduled meeting time in accordance with procedure 08A5-1.3." Barry said steps two and three of that procedure was updated to reflect the FHWA actions.

Barry thanked Todd Emery for his efforts in getting the procedure changed, adding that this new procedure makes their job a lot easier.

Discussion points were:

- Todd commented that UDOT will get the letter the day of the meeting, but it may not be at the meeting. He said he may have to alter the letter based on the discussions during the meeting.
- Todd then commented on the coordination process of standards before the meeting and the review they do when the agenda is published. He said some areas coordinate with them as they are putting the change together, but some may not. He asked if during the month or two before coming to the Standards Committee could they work with their FHWA counterparts to review the proposed change. He asked if they would do that as a courtesy and that most already did.
- Referring to the submittal sheet portion of the policy Jim commented that FHWA isn't listed in item D for stakeholders. He asked if something could be added. Barry said he would add something before this new version is published.

**Action Item:** Barry to update submittal sheet portion of policy to add FHWA as a stakeholder.

6. Standard Drawing SL 14, Highway Luminaire Pole Ground Mount and SL 15, Luminaire Slip Base Details (Agenda Item 6) – Presented by Scott Jones.

Scott presented a background of the changes. He said one drawing is for a fixed base outside of the clear zone and one is for a slip base inside the clear zone. He said the anchor bolt patterns have been different for the two applications and has caused a lot of confusion. He said there have been times when a foundation had to be ripped out and reinstalled because the wrong pattern was constructed.

Scott said the proposed change is to make the two patterns the same. He added that these are state furnished items. He said it will cost only a \$1.50 more for the supplier to change.

Scott said there was one other change to SL 14. He said in the foundation detail a reference to Standard Drawing SN 12 B was added.

Discussion points were:

- Darrell asked a general question on luminaires. He asked if we were still having a delivery problem. Scott said for the last year and a half the supply has worked very smoothly. He said the only problem they have had is some Contractors wait until the last day when they want to pick up the item. He said if Contractors give them the appropriate notification they always have the item ready for the Contractor.
- Darrell asked if it is worth while having inventory beyond that required for a project. Scott said they stockpile additional items. He said he isn't aware of running out of supply over the last year or more.
- Jim asked how do we make sure the right type of base is installed, meaning not installing a fixed base where a slip base is called for.
- Shana asked why a fixed base was even needed. Scott said the designer fills out the state furnished items form before it goes to construction, identifying the foundation that is being used. Richard Clarke said the majority of what they use is slip base. Richard also said most fixed bases are used in high pedestrian areas such as downtown Salt Lake City.
- There were no other significant comments.

**Motion:** John Leonard made a motion to approve Standard Drawings SL 14 and SL 15 as discussed. Seconded by Todd Jensen. Passed unanimously.

Being no changes to the drawings from what was submitted Barry said they would use their latest version for the final copy.

7. Standard Drawing CC 7B, Crash Cushion Type "F" BEAT-SSCC (Agenda Item 7) – Presented by Glenn Schulte.

Glenn said this is the drawing for the new barrier end treatment approved in March. He said the drawing is needed so the item can be installed correctly. Glenn commented that the new item has been installed in several locations in Region 1. Glenn said he received one late comment from the ACEC dealing with the attachment to the parapet dealing with manufacturer requirements. Glenn said a new note will be added in the correct order of numbered notes.

Discussion points were:

- Jim asked about the recommended attachment. Glenn explained how the end treatment will be installed, referring to Section C - C on the drawing.
- Glenn said it is direct competition for our current Type F system. In response to Jim's question as to cost, Glenn said the initial cost is about the same. As for replacement costs Glenn said the new system is much less because of the design. He said some parts are reusable after a hit. He said because the new system is ground mounted it doesn't require a concrete pad.
- Glenn went on to explain how the new BEAT-SSCC system worked. Glenn said Region One has installed four on a project and Region Three is in the process of installing the system in five locations.
- Randy pointed out that an arrow head was missing from the slope callout in the bottom left detail.

**Motion:** John Leonard made a motion to approve Standard Drawings CC 7B as discussed and modified for the note and arrow head. Seconded by Darrell Giannonatti. Passed unanimously.

8. Standard Drawing BA 3B, Precast Concrete Constant Slope Transition Section For Crash Cushion and W-Beam Guardrail (Agenda Item 8) – Presented by Glenn Schulte.

Glenn handed out additional information received from Portland Bolt for the way we currently require our pins. He said a new note was added to the drawing.

Continuing, Glenn said in the field we are only getting spot welding on the plate washers. He said text was added to indicate a continuous weld.

Discussion points were:

- Referring to the weld symbol on Option 2, Todd Jensen said the symbol is too small to understand the correct type of weld. Todd said the same comment applies to the next detail over for the Galvanized Stabilization Pin.
- Jim asked about the other drawings. Glenn said he handed out the other two drawings and that those drawings had the same comments. Glenn said the drawings weren't included in the package because of a miscommunication within his area. The changes on BA 1B and BA 4B are exactly the same as on BA 3B that was included in the agenda package. Glenn asked that all three drawings be considered for approval.

**Motion:** Darrell Giannonatti made a motion to approve Standard Drawings BA 1B, BA 3B, and BA 4B as discussed and modified. Seconded by John Leonard.

Jim noted that Glenn asked the Committee to do something different from the normal process in that the submittals for two of the drawings were not received in time for the proper Committee review. Jim said this makes sense because we are approving the same thing on two other drawings. Jim asked Darrell to repeat the motion. Darrell did so. Glenn said he did discuss this with Roland Stanger, FHWA. There was no further discussion.

**Motion:** Passed unanimously.

John Leonard recognized Glenn for his service and his upcoming retirement. The Committee applauded Glenn. Glenn did point out that he has been asked to come to the next meeting to present an item.

9. Review of Assignment/Action Log (Agenda Item 9)

Jim asked Barry to review the action log.

- Item 1, Rumble Strips. Barry said the initial item for this was standard drawing PV 8 but it is now being tracked just as rumble strips. Barry said that John Leonard had advised him that a QIT was working on formulating a policy. Barry pointed out that this item was originally open June 27, 2002. Traffic and Safety expects to have something for this item for the October 2005 meeting. Barry said they initially wanted to close the items that had been open for a long time until something was ready to bring forward but it looks like these items will have something to present by the next meeting or two.
- Item 2, Painted Cattle Guard. Barry said according to John this is a dead issue and is recommending it be close. John said there is nothing to support the use of painted cattle guards. Barry said this item was opened December 19, 2003. Jim asked if maintenance is to replace this item in kind. John said they are looking at the open range issue, an item Robert Hull has responsibility for. John said Utah is an open range state. John said currently there is no such thing as a painted cattle guard in UDOT policies or standards. John thought a policy was in the final approval stages. He said that cost benefit information exists for the rumble strips but he said they aren't sure there a benefit at all for painted cattle guard. He said it is a policy level decision.
- Item 3, New Drawing of Four-Legged Intersection. Barry said this was originally opened August 28, 2003 but nothing has been brought forward. Barry indicated that John had said they were working on a three-legged intersection first, before this item. Barry said this item needs to be closed or a new target day set. John added that cost is the biggest issue on the four-legged intersection. As such John said they are reevaluating the three-legged intersection.

One comment was to open a new item for the three-legged intersection. John said both will probably come together around the January time frame. Barry pointed out the last two years there has been no December meeting with the next one being in February. Target date is February 2006.

- Item 4, Traffic Barriers. Barry said the item was to be on the agenda but no information had been received in time. Tim said his schedule caused a problem in finishing this. Something should be ready for the next meeting.
- Item 5, Open Range Cattle. Barry asked if this one should be closed. John thought this issue would drive item 2 on the painted cattle guard. John said there have been discussions but he didn't know whether it would go to Traffic and Safety or Research. Barry asked if they should keep tracking the item. Barry said Robert Hull's name is on the item. Barry said in order to make the October meeting something would need to be in the coordination process by mid-September. Jim said to put a more realistic date on this. John said Abdul Wakil had done some research on this but there isn't much information. John said there wasn't much information in response to a question from Shana. Target date is December 2005.
- Item 6, Section 00555, Prosecution and Progress, Liquidated Damages Table letter to FHWA indicating the information has been reviewed but that no change is being recommended. As of the August 25, 2005 meeting FHWA indicated they had not received the required letter. Barry said he sent Pete two emails to follow up on this but no information has been received. Darrell commented that the change was negligible so they decided to stay with what they already had in the spec book. Barry agreed, adding that the letter had to go to FHWA stating that fact. FHWA has yet to receive that letter. Barry said he has asked twice for inputs but as yet has not received any input. Barry said the open item is the letter to FHWA stating no change will be made. Jim asked if this item would be complete when the letter is complete. Barry indicated it would. Barry said all he needs is notice the letter is done so he can close out the item.
- Item 7, Environmental Supplemental Specifications and Standard Drawings: This item was approved during the meeting. Closed.
- Item 8, Supplemental Specification 00725M, Scope of Work: This item was dropped from the agenda because no information was received by the due date. Barry indicated he had sent an updated file with instructions to check the file for accuracy and an updated submittal sheet was needed but nothing was received back. Barry said Jeff Saddler indicated he misunderstood the comments and request. Barry said when he sent requests to everyone with a project agenda item no reply was received to that either. At that time the item was removed from the agenda.
- Item 9, ATMS Supplemental Specifications: This item was approved during the meeting. Closed.

- Item 10, Deviating from Standards: Barry said this item is being worked on. Various options were discussed by the Standards Section. Jim asked if a target had been set, adding the region directors have a will to address this issue.
- Item 11, Median Cable Barrier: Richard said this item is being worked. Jim said this is an offset of the median cable barrier. John added that based on some accident data they have relocated some of the cable barrier. Jim said some guidance came out of the recent AASHTO Subcommittee on Design meeting. Target date is October 2005.
- The status report as handed out at the meeting follows:

### **Action Item Update for August 25, 2005 Standards Committee Meeting**

(As of August 25, 2005)

**Item 1, Rumble Strips:** According to John Leonard a QIT is formulating a policy. Traffic and Safety to update the drawing. This item was originally opened June 27, 2002. **Expected target date now October 2005.**

**Item 2, Painted Cattle Guard:** According to John Leonard this is a dead issue. There is no standard or research available in order to continue with this item. This item was originally opened December 19, 2003. **Recommend closing item.**

**Item 3, New Drawing of Four-Legged Intersection:** According to John Leonard he is currently working on a three-legged intersection. Once that is done he will work on this item. This item was originally opened August 28, 2003. **Recommendation is to leave open. A target date is needed.**

**Item 4, Traffic Barriers (Median Barrier Selection Process):** This item was to be covered on the August agenda but no file or information was received prior to deadline for publication of agenda. **A target date is needed.**

**Item 5, Open Range Cattle Issues:** John Leonard didn't have any information prior to deadline for publication of agenda. Target date had been moved to August 2005 meeting at the last meeting. **A new target date is needed.**

**Item 6, Section 00555, Prosecution and Progress, Liquidated Damages Table letter to FHWA indicating the information has been reviewed but that no change is being recommended:** No information received in response to an e-mail request sent on July 27th and opened on August 4th.

**Item 7, Environmental Supplemental Specifications and Standard Drawings:** This item is being covered on the August agenda.

**Item 8, Supplemental Specification 00725M, Scope of Work:** This item was to be covered on the August agenda but no file or information was received prior to deadline for publication of agenda. **A target date is needed.**

**Item 9, ATMS Supplemental Specifications:** This item is being covered on the August agenda.

**Item 10, Deviating from Standards:** Still in progress. The Standards Section has discussed various options and the direction to be taken but no further action taken as yet. No target date has been established.

**Item 11, Median Cable Barrier:** Still in progress. No target date has been established.

10. Meeting Improvements (on-going agenda item) (Agenda Item 10).

Darrell commented on the commendable action taken to reduce the length of the meeting and to keep it that way.

11. Other Business:

**AGC item:** Jim said the AGC asked him to look into reorganizing the agenda. Jim said they asked what process is used to organize the agenda, adding that they seemed to be requesting like items be covered together. This would facilitate attendance from other AGC members at the Standards Committee meeting to deal with specific items. Jim asked Barry for help in doing that.

Barry explained how the agenda is put together. He said to start the approved items are remove and the remaining items are moved up. Barry said as new items are received they are added to the agenda in that order. Barry said that is basically a random process and can easily change to fit additional needs, adding that he can get with Richard to organize the agenda.

Darrell said that would make it easier for the proper people to review the changes. Barry said for the next meeting he will group like items together. As new items come in Barry said they will fit them in to the agenda.

There was a comment to group the items based on the CSI division headings. Ab Fatemi said that would bring for example all the electrical or ATMS people together. Ab said neither he nor Mont are experts in all the areas but the subcontractors might be interested in attending this meeting for their particular area of expertise. Barry added that he also puts items after each other if the presenter is the same regardless of subject matter so it is easier on the presenter. Barry said they will figure something out.

Barry said no one has every commented on this before so he has been putting the agenda together the same way for several year. He added there is no reason why that can't be changed. Comments indicated that while attendance at this meeting might not increase, there would be better reviews by the AGC. Ab added that some Contractors have asked about attending this meeting but not wanting to stay for the entire meeting.

Todd Emery asked if the reason is to facilitate better reviews or to get more people to attend the meeting. Darrell said some don't like to go though the entire package because there is no logical order to the items.

**FHWA Item:** Todd Emery said something they have seen in each of the regions relates to pipe backfill. Todd said the way he reads the specification is that backfill is paid under the pipe item. Todd said the backfill contractor can either use the native material if it is suitable or import material if the native material is unsuitable. Todd said one of the regions is paying extra for the imported material even though it is included in the bid item. Todd said he is making UDOT aware that FHWA wouldn't participate in that and are not going to in one of the regions because they feel it is part of the bid item. He said the region was going to bring something to the Standards Committee to change the item to put all the risk on the Department. In that case if the material is imported the Department would pay the extra. Todd said the region commented that they know what the specification says but have been doing it that way for years.

Ab said that isn't an issue unless the Engineer comments that the material is not suitable and to bring suitable material. He said the question then is if the material isn't suitable who pays for it. Todd said the specification indicates if the material is not suitable then the Contractor is responsible to bring in suitable material. Comment indicated that puts the risk on the Contractor because he doesn't know if the material is suitable or not until he gets out there. Ab said a modification is needed because the Contractor can't start digging before bidding the job.

Jim suggested that Todd Jensen look into this. This is a hydraulics/structures issue.

**Action Item:** Todd Jensen to report on the use of suitable versus unsuitable material for pipe backfill and the relationship to payment as part of the bid item or as an extra.

**Photos:** Richard Miller pointed out they were taking pictures of members and attendees for use as a training aid during their region visits. Ab said he would email a picture of Mont.

Adjourned.

The next regular meeting of the Standards Committee has been scheduled for Thursday, October 27, 2005, at 8:00 a.m., in the 1st floor conference room of the Rampton Complex.

**Approval of Minutes:** The foregoing minutes were approved at a meeting of the Standards Committee held \_\_\_\_\_, 2005.

## Assignment/Action Item Log

Date Initiated/Updated	Item #	Action	Assignments	Status	Target Date
June 27, 2002  October 31, 2002	1	Standard Drawing PV 8 (Rumble Strip)	Darrell to assign someone from Construction. Richard Miller from Maintenance. Fred Doehring. Betty Purdie. Robert Hull to head the group.	Open	December 2005 meeting
December 19, 2002		- Process being reviewed. Research looking into testing.	Robert Hull Stan Burns		
February 27, 2003		- A policy is to be developed over the next several months.	Robert Hull Stan Burns		
April 24, 2003		- No change			
June 26, 2003		- No further updates. Target date changed.			
August 28, 2003		- Progress continuing. To work with Research.			
October 30, 2003		- Process continuing.			
December 18, 2003		- Still being worked.			
February 26, 2004		- No update			
April 29, 2004		- Jim to follow up with Research.			
June 24, 2004		-Research has study with University of Utah			
August 26, 2004		- Research study complete. Policy being written.			
October 21, 2004		- Waiting for BYU study results.			
February 24, 2005		- Still being reviewed. Target changed.			
April 28, 2005		- No change			
June 30, 2005		- No one present to discuss.			
August 25, 2005		- QIT working on a policy. Item being tracked as Rumble Strip Policy.	Traffic and Safety - Robert Hull		

Date Initiated/Updated	Item #	Action	Assignments	Status	Target Date
August 28, 2003	2	A new drawing depicting the four-legged intersection to be developed.	John Leonard	Open	February 2006 meeting
October 30, 2003		No change in status.			
December 18, 2003		Target date set.			
February 26, 2004		No change.			
April 29, 2004		Being developed			
June 24, 2004		No report. Not due until August. E-mail sent to SAF and RES.			
August 26, 2004		No change except target date.			
October 21, 2004		Still under development. Target date moved.			
February 24, 2005		No change. Work priorities prevented further review.			
April 28, 2005		No change			
June 30, 2005		No one present to discuss.			
August 25, 2005		Looking at three-legged intersection first.			

Date Initiated/Updated	Item #	Action	Assignments	Status	Target Date
April 29, 2004	3	Traffic Barriers: Task group to gather information and make a recommendation for a barrier type.	Jason Davis	Open	October 2005 meeting
June 24, 2004		Review still in progress.	Tim Biel		
August 26, 2004		No change			
October 21, 2004		No change			
February 24, 2005		No change. Work priorities prevented further review. Cable barrier complicating issue.			
April 28, 2005		No change. Still compiling data.			
June 30, 2005		Finalize information			
August 25, 2005		Scheduling delay			
February 24, 2005	4	Open Range Cattle Issues: Develop relevant information and guidelines.	Robert Hull	Open	December 2005 meeting
April 28, 2005		No change			
June 30, 2005		No one present to discuss.			
August 25, 2005		Research data still being investigated			

Date Initiated/Updated	Item #	Action	Assignments	Status	Target Date
April 28, 2005	5	For Section 00555, Prosecution and Progress, Liquidated Damages Table write letter to FHWA indicating the information has been reviewed but that no change is being recommended.	Pete Negus	Open	As soon as possible.
June 30, 2005		No current status. FHWA has not received the letter.			
August 25, 2005		FHWA has not received the letter.	Darrell Giannonatti		
June 30, 2005	6	Supplemental Specification 00725M, Scope of Work: Update the supplemental specification based on the discussion.	Jeff Saddler	Open	October 2005 meeting
August 25, 2005		No inputs received. Item removed from August agenda			
June 30, 2005	7	Deviating from Standards: Form QIT to put together a policy to handle deviating from standards.	Richard Miller	Open	October 2005 meeting
August 25, 2005		Still in progress. Update at next meeting.			
June 30, 2005	8	Median Cable Barrier: Investigate the need for an off set in the installation of median cable barrier.	Richard Miller	Open	October 2005 meeting
August 25, 2005		Still in progress. Update at next meeting.			

Date Initiated/Updated	Item #	Action	Assignments	Status	Target Date
August 25, 2005	9	Supplemental Specification 00555M, Prosecution and Progress, Limits of Operation: Coordinate the required action to have the process placed in the proper location, to the detail necessary and bring the recommendation to the Standards Committee for approval.	John Leonard	Open	October 2005 meeting
August 25, 2005	10	Pipe Backfill: Report on the use of suitable versus unsuitable material for pipe backfill and the relationship to payment as part of the bid item or as an extra.	Todd Jensen	Open	October 2005 meeting

Closed Items From Last Meeting (August 25, 2005)					
Date Initiated/Updated	Prior Item #	Action	Assignments	Status	Target Date
December 19, 2003	2	- Painted Cattle Guard: With assistance from Research Division, Traffic and Safety to make recommendation.	Glenn Schulte John Leonard	Closed	Closed
February 27, 2003		- No status.			
April 24, 2003		- Traffic Engineering Panel to review			
June 26, 2003		- No change. Not due until August.			
August 28, 2003		- No change.			
October 30, 2003		- Traffic and Safety and Research to work together to determine history and usage requirements.	Bob Hull Stan Burns		
December 18, 2003		- No change in target date.			
February 26, 2004		- Not on agenda.			
April 29, 2004		- Still gathering information			
June 24, 2004		- No report. E-mail sent to SAF and RES.			
August 26, 2004		- Cattle Guard – Put team together to look into information related to cattle guard type and make a recommendation to include a usage policy and related standard specifications and drawings.	John Leonard		
October 21, 2004		- No change.			
February 24, 2005		- No change. Work priorities prevented further review.			
April 28, 2005		- No change			
June 30, 2005		- No one present to discuss.			
August 25, 2005		- No data available to show usage or effectiveness. Item relates to the Open Range Cattle item. Further reports under that item.			

June 30, 2005	7	Environmental Supplemental Specifications and Standard Drawings: Environmental Section to review and update the supplemental specifications and standard drawings based on the meeting discussion.	Brent Jensen Terry Johnson	Closed	Closed
August 25, 2005		Approved at the August 2005 meeting			
June 30, 2005	9	ATMS Supplemental Specifications: Review, correction, and update supplemental specifications as discussed in the meeting.	Robert Strong	Closed	Closed
August 25, 2005		All supplemental specifications approved at the August 2005 meeting.			
August 25, 2005	N/A	New item at August meeting that was closed before the next meeting.  Update submittal sheet portion of policy to add FHWA as a stakeholder.	Barry Axelrod	Closed	Completed with publication of standards changes.

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# **Standards Committee Agenda Items Section**

Submittal Sheets, Supplemental Specification Drafts, Standard Drawing Drafts, and other supporting data for the October 27 2005 Standards Committee meeting follows.

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# Standards Committee Submittal Sheet

Name of preparer: Jeff Saddler &amp; Darrell Giannonatti

Title/Position of preparer: Productivity Coordinator & Director for Construction & Materials

Specification/Drawing/Item Title: Scope of Work

Specification/Drawing Number: 00725M

<p><b>Enter appropriate priority level:</b> (See last page for explanation)</p>	<p><b>File from original presentation. Updates to supplemental specification made per meeting discussion.</b></p>
<p><b>3</b></p>	

Sheet not required on editorial or minor changes to standards. Check with Standards Section.

**NOTES:**

1. All Submittal Sheets must be completed and sent to the Standards and Specifications Section by the Standards Committee suspense date as shown on their web page.  
(<http://www.udot.utah.gov/index.php/m=c/tid=303>)
2. The Preparer of the Submittal Sheet or the Standards Committee member (or authorized substitute) responsible for the submittal must be present at the Standards Committee meeting and capable of discussing and answering all questions related to the submittal. The item will be postponed to a later meeting if one of these people is not present.
3. Notify the Standards and Specifications Section immediately of any changes that impact the presentation to include absence of sponsor or delay in presentation.

Complete the following: (Use additional pages as needed.)

- A. Why? Detail the reason for changing the Standard (Specification or Drawing), what has initiated a new Standard, or what has caused a new or changed item of interest.

**AGC approached UDOT senior management to address current partnering practices.**

- B. How is Measurement and Payment handled? Existing (from the measurement and payment document), modified, or new measurement and payment to be included with all Standard Specifications or Supplemental Specifications.

## No Change

- ### C. Stakeholder Notification for AGC and ACEC:

By email provide the AGC and ACEC Standards Committee member a copy of all pertinent information relating to the specification or drawing. Detail all responses below. Indicate if no comments were received.

Note: There is a two-week response time set for this item.

Refer to the Standards Committee Web site, Members page at <http://www.udot.utah.gov/index.php/m=c/tid=659> for the respective e-mail addresses.

AGC Comments: (Use as much space as necessary.)

**No Comments Received**

ACEC Comments: (Use as much space as necessary.)

**No Comments Received**

- D. Stakeholders? From the list provided, document the stakeholders contacted, detailing: the company, name of contact, how contacted (by phone, email, hard copy, or in person), concerns, and comments of the change. Stakeholders:

Note: There is a two-week response time set for this item. Allow Stakeholders two weeks to process and respond to coordination requests. All areas should try to complete review and comment as soon as possible but within two weeks.

In-house (for example, preconstruction, materials, construction, safety, design, maintenance) (Include all applicable in-house areas even if not listed above.)

Construction Engineers

**Jim McMinmee**  
**Karl Verhaeren**  
**Tim Rose / Rob Wright**  
**Darrell Giannonatti**  
**Tracy Conti**  
**Robert Westover**  
**Jeff Saddler**

Contractors (Any additional contacts beyond “C” above.)

**John Parson – Staker-Parson**  
**Jeff Clyde & Norm Avery – WW Clyde**  
**Brian Morin - Granite**  
**Jim Golding – Geneva Rock**  
**Kip Wadsworth – Ralph Wadsworth**

Suppliers

Consultants (as required) (Any additional contacts beyond “C” above.)

Others (as appropriate)

- E. Minimum Sampling and Testing Guide (MS&T Guide)? (Consider all impacts and possible changes to the MS&T Guide during the preparation process. Coordinate with the Department Materials Engineer as appropriate. List all impacts and action taken.)

**No Change**

- F. Costs? (Estimates are acceptable.)

1. Additional costs to average bid item price.

**N/A**

2. Operational (For example, maintenance, materials, equipment, labor, administrative, programming).

**No Change**

3. Life cycle cost.

**N/A**

- G. Benefits? (Provide details that can be used to complete a Cost – Benefit Analysis.) (Estimates are acceptable.)

**National survey of 30 partnered projects worth 684 million showed:**

**No Litigation**

**4.5 million saved in change orders and early completion**

**50% finished an average of 80 days early**

- H. Safety Impacts?

**N/A**

- I. History? Address issues relating to the current usage of the item and past reviews, approvals, and/or disapprovals.

**N/A**

## Priority Explanation

Enter the appropriate priority in the box on the first page of the document.

- |            |   |
|------------|---|
| Priority 1 | Upon posting, this impacts all projects in construction and design with a Change Order, Addenda, and immediate change to projects being advertised. |
| Priority 2 | Upon posting, this impacts projects being advertised.   |
| Priority 3 | Upon posting, the approved standard takes effect <b>four weeks</b> later for projects being advertised.   |

**Supplemental Specification  
2005 Standard Specification Book**

**SECTION 00725M**

**SCOPE OF WORK**

**Add Article 1.2, paragraph B:**

- B. UDOT Partnering Field Guide

**Delete Article 1.4 and replace with the following:**

**1.4 PARTNERING**

- A. Partnering does not change the legal relationship of the parties to the Contract, and does not relieve either party from any of the terms of the Contract.
- B. The Department encourages the formation of a strong partnership among the Department, the Contractor, and the Contractor's principal subcontractors. This partnership draws on the strengths of each organization to identify and achieve mutual goals.
- C. Implement partnering in accordance with UDOT's Partnering Field Guide. Refer to <http://www.udot.utah.gov/index.php/m=c/tid=719>.
1. Determine jointly between the Contractor and Engineer to either use an independent third party firm to implement facilitated partnering or to jointly share in those responsibilities.
  2. Contact the Engineer within 30 days of Notice of Award and before the Preconstruction Conference to implement a third party facilitated partnering initiative.
  3. Determine jointly between the Contractor and Engineer a facilitator for the meeting and determine attendees, agenda, duration, and location of a partnering workshop.
- ~~D.~~ Both the Department and the Contractor agree to, and share equally any costs to accomplish partnering.
- E. Use UDOT's Partnering Field Guide to determine workshop attendance. Refer to <http://www.udot.utah.gov/index.php/m=c/tid=719>.

**FD.** **Follow-up** workshops may be held periodically as agreed by the Contractor and the Department.

## Standards Committee Submittal Sheet

Name of preparer: Glenn Schulte

Title/Position of preparer: Safety Specialist

Specification/Drawing/Item Title: BA 4D W-Beam Guardrail Anchor Type 1

Specification/Drawing Number: BA 4D

**Enter appropriate priority level:**

(See last page for explanation) 3

Sheet not required on editorial or minor changes to standards. Check with Standards Section.

### NOTES:

1. All Submittal Sheets must be completed and sent to the Standards and Specifications Section by the Standards Committee suspense date as shown on their web page.  
(<http://www.udot.utah.gov/index.php/m=c/tid=303>)
2. The Preparer of the Submittal Sheet or the Standards Committee member (or authorized substitute) responsible for the submittal must be present at the Standards Committee meeting and capable of discussing and answering all questions related to the submittal. The item will be postponed to a later meeting if one of these people is not present.
3. Notify the Standards and Specifications Section immediately of any changes that impact the presentation to include absence of sponsor or delay in presentation.

Complete the following: (Use additional pages as needed.)

- A. Why? Detail the reason for changing the Standard (Specification or Drawing), what has initiated a new Standard, or what has caused a new or changed item of interest.

Revision 1: removal of the soil plate, testing has concluded that the 6' foundation tube is adequate and deflection is not substantially different with or without the soil plate.

Revision 2: Installation detail, revised to match the pay item description.

Current Pay item:

#	028410090	W-Beam Guardrail Anchor Type 1	Each
In place. Includes 12½ ft rail element, end section, one standard wood post, one shortened wood post with foundation tube, and hardware.			

- B. How is Measurement and Payment handled? Existing (from the measurement and payment document), modified, or new measurement and payment to be included with all Standard Specifications or Supplemental Specifications.

NO CHANGE

C. Stakeholder Notification for AGC and ACEC:

By email provide the AGC and ACEC Standards Committee member a copy of all pertinent information relating to the specification or drawing. Detail all responses below. Indicate if no comments were received.

Note: There is a two-week response time set for this item.

Refer to the Standards Committee Web site, Members page at <http://www.udot.utah.gov/index.php/m=c/tid=659> for the respective e-mail addresses.

AGC Comments: (Use as much space as necessary.) Contacted Monte Wilson, no concerns.

ACEC Comments: (Use as much space as necessary.) Contacted Tyler Yorgensen, no concerns.

D. Stakeholders? From the list provided, document the stakeholders contacted, detailing: the company, name of contact, how contacted (by phone, email, hard copy, or in person), concerns, and comments of the change. Stakeholders:

Note: There is a two-week response time set for this item. Allow Stakeholders two weeks to process and respond to coordination requests. All areas should try to complete review and comment as soon as possible but within two weeks.

In-house (for example, preconstruction, materials, construction, safety, design, maintenance) (Include all applicable in-house areas even if not listed above.)

Construction Engineers: No response

Maintenance Engineers:

R-2, Betty Purdie no comments

R-4, Hugh Kirkham, had an editorial change

Preconstruction Engineers: No response

Traffic Engineers: R-3, Doug Bassett no comments

Contractors: contact done through AGC

Contractors (Any additional contacts beyond "C" above.)

Suppliers: non contacted

Consultants (as required) (Any additional contacts beyond "C" above.)

FHWA (To be accomplished as part of the two-week process before submitting to the Standards and Specifications Section for inclusion on the Standards Committee agenda.) (This is in addition to the requirements of UDOT Policy 08A5-1, procedure 08A5-1.3.)

Reviewed by Roland Stanger, FHWA Safety, had no comment.

Others (as appropriate)

- E. Minimum Sampling and Testing Guide (MS&T Guide)? (Consider all impacts and possible changes to the MS&T Guide during the preparation process. Coordinate with the Department Materials Engineer as appropriate. List all impacts and action taken.)

No impact

- F. Costs? (Estimates are acceptable.)

1. Additional costs to average bid item price.

Cost minimal, \$20.00, cost decrease may be realized.

Cost is from similar plates required on a Type C crash cushion.

2. Operational (For example, maintenance, materials, equipment, labor, administrative, programming).

No impact

3. Life cycle cost. No impact

- G. Benefits? (Provide details that can be used to complete a Cost – Benefit Analysis.) (Estimates are acceptable.)

One less part on the anchor to be repaired when required.

- H. Safety Impacts? No impacts

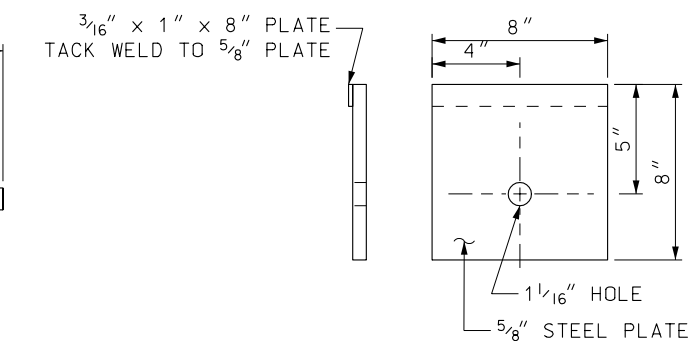
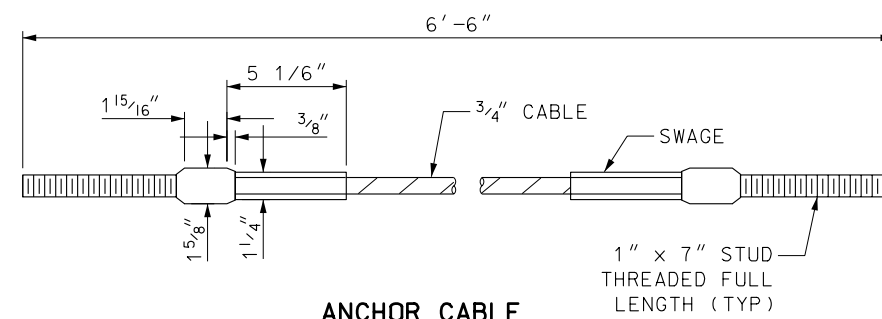
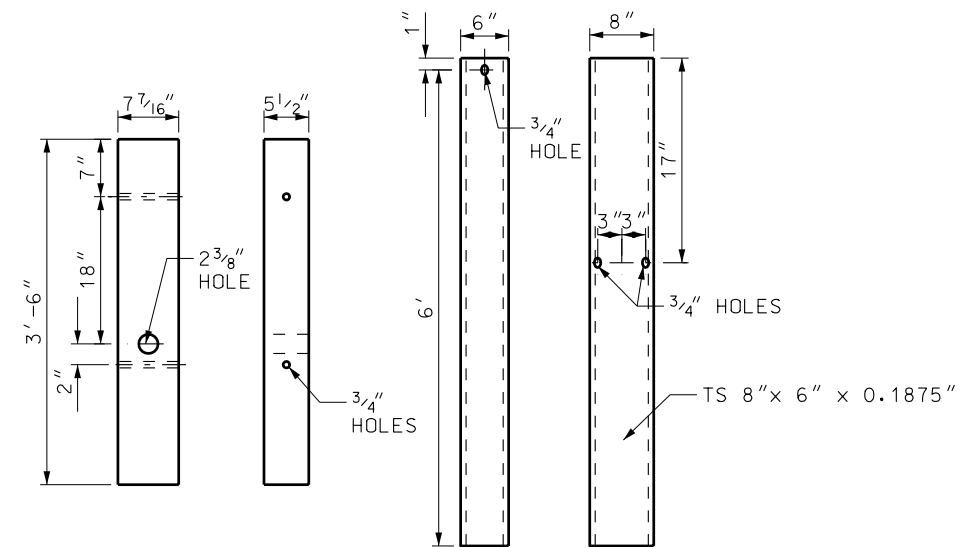
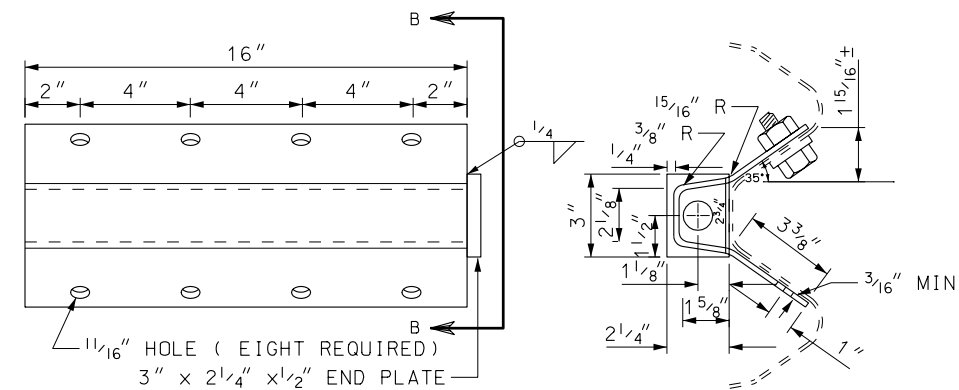
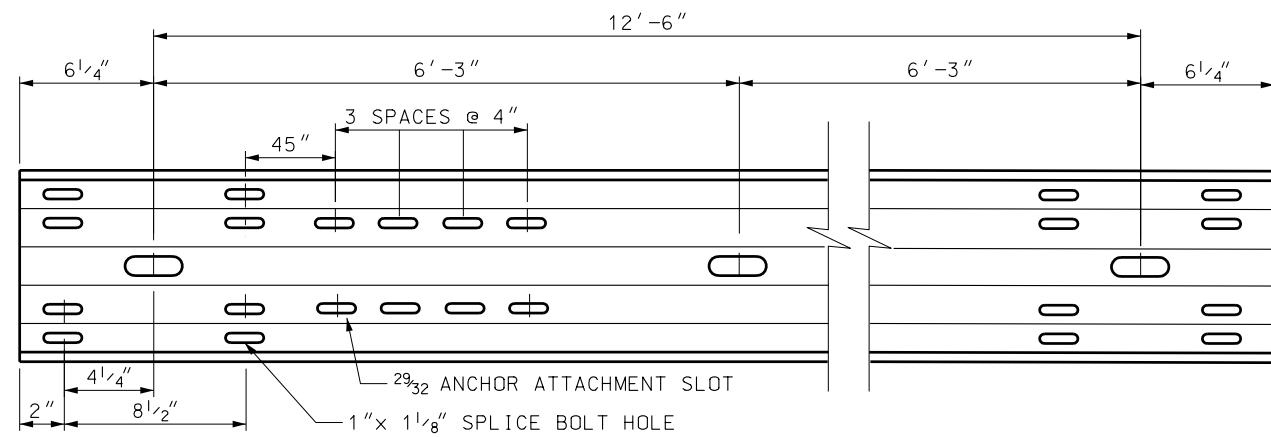
- I. History? Address issues relating to the current usage of the item and past reviews, approvals, and/or disapprovals.

Originally approved to provide tension to w-beam barrier system, original design required the soil plate, based on testing and real world experiences the plate proved not to be of great value, the post tube provided sufficient resistance to allow the w-beam to go into tension upon impact.

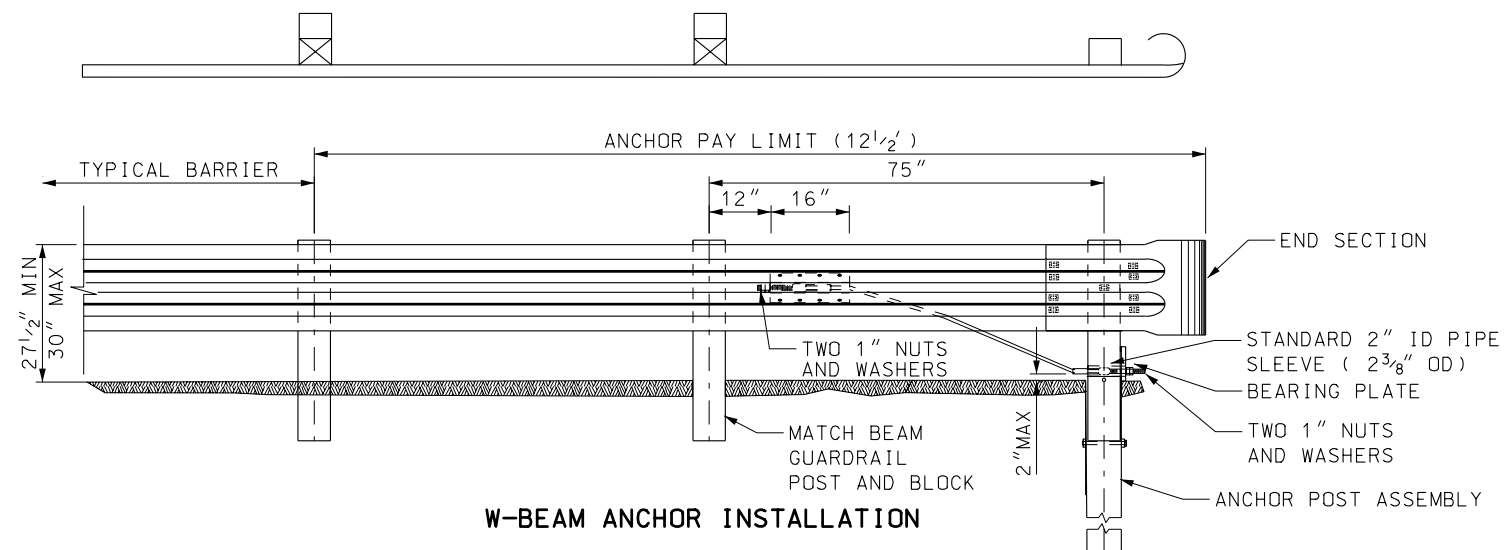
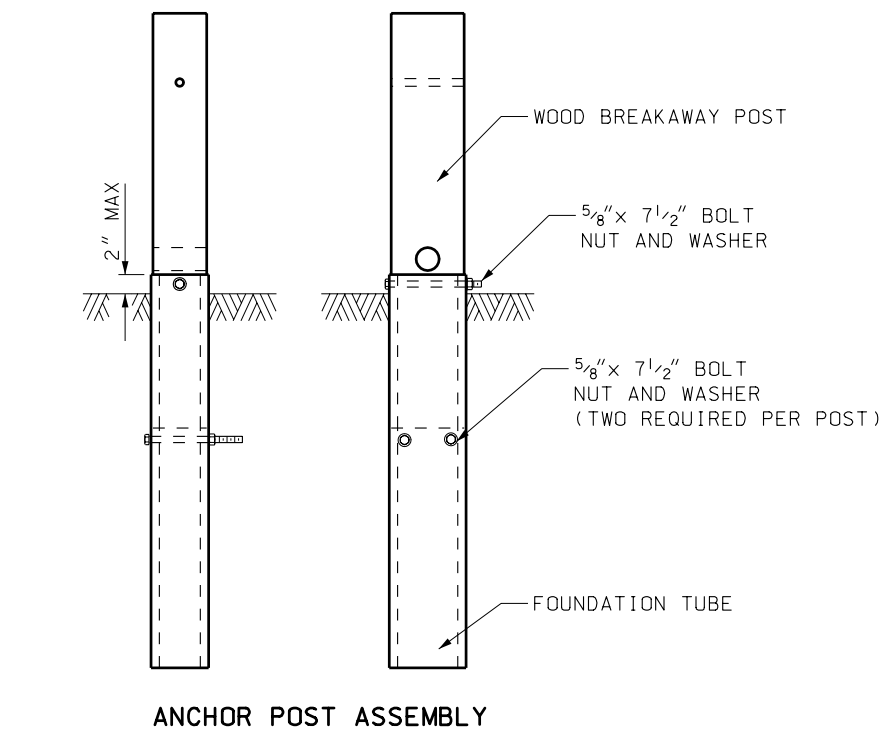
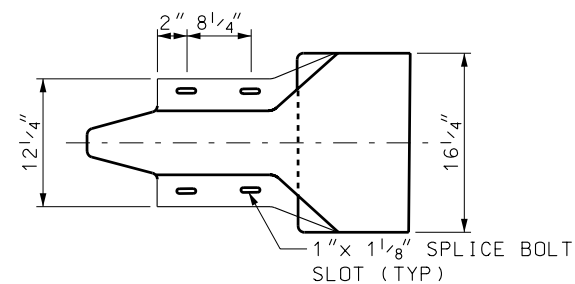
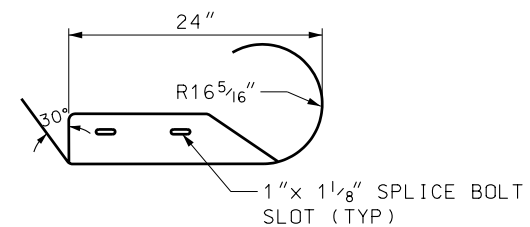
## Priority Explanation

Enter the appropriate priority in the box on the first page of the document.

- |            |   |
|------------|---|
| Priority 1 | Upon posting, this impacts all projects in construction and design with a Change Order, Addenda, and immediate change to projects being advertised. |
| Priority 2 | Upon posting, this impacts projects being advertised.   |
| Priority 3 | Upon posting, the approved standard takes effect <b>four weeks</b> later for projects being advertised.   |



NOTE:  
INSTALL BEARING PLATE WITH 5"  
PORTION UP. SECURE PLATE TO  
POST USING TWO NAILS AT TOP  
OF PLATE.



<b>REVISIONS</b>					
<b>ID.</b>	<b>DATE</b>	<b>APPR.</b>	<b>REMARKS</b>		
1	10/27/05	GS	REMOVED SOIL PLATE REQUIREMENT. REVISED W-BEAM ANCHOR INSTALLATION DETAIL-REVISED DIMENSIONS ON BREAKAWAY POST AND FOUNDATION TUBE.		

~~UTAH DEPARTMENT OF TRANSPORTATION~~  
~~STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION~~

~~STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION~~

~~SALT LAKE CITY, UTAH~~

RECOMMENDED FOR APPROVAL

~~AN STANDING COMMITTEE~~

DATE OCT.27,2005

DATE OCT.27.2005

W-BEAM GUARDRAIL  
ANCHOR  
TYPE I

STD DWG  
BA 4D

STANDARD DRAWING TITLE

REMARKS

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## Standards Committee Submittal Sheet

Name of preparer: Glenn Schulte

Title/Position of preparer: Safety Specialist

Specification/Drawing/Item Title: W-Beam Median Barrier Transition

Specification/Drawing Number: BA 4Q

**Enter appropriate priority level:**

(See last page for explanation) 3

Sheet not required on editorial or minor changes to standards. Check with Standards Section.

### NOTES:

1. All Submittal Sheets must be completed and sent to the Standards and Specifications Section by the Standards Committee suspense date as shown on their web page.  
(<http://www.udot.utah.gov/index.php/m=c/tid=303>)
2. The Preparer of the Submittal Sheet or the Standards Committee member (or authorized substitute) responsible for the submittal must be present at the Standards Committee meeting and capable of discussing and answering all questions related to the submittal. The item will be postponed to a later meeting if one of these people is not present.
3. Notify the Standards and Specifications Section immediately of any changes that impact the presentation to include absence of sponsor or delay in presentation.

Complete the following: (Use additional pages as needed.)

- A. Why? Detail the reason for changing the Standard (Specification or Drawing), what has initiated a new Standard, or what has caused a new or changed item of interest.

Traditionally UDOT has just installed an additional block and w-beam rail to the backside of a standard W-Beam Guardrail Transition element. But with the change in the transition element BA 4B, the use of 10" x 10" posts and blocks at posts 1 & 2 this is no longer possible. This design was developed using the traditional design and meet criteria set forth by NCHRP-350 Crash test requirements and FHWA. This transition will be also be used when Type C crash cushions are attached to concrete barrier or a bridge parapet.

- B. How is Measurement and Payment handled? Existing (from the measurement and payment document), modified, or new measurement and payment to be included with all Standard Specifications or Supplemental Specifications.

A new pay item would have to be established.

- C. Stakeholder Notification for AGC and ACEC:

By email provide the AGC and ACEC Standards Committee member a copy of all pertinent information relating to the specification or drawing. Detail all responses below. Indicate if no comments were received.

Note: There is a two-week response time set for this item.

Refer to the Standards Committee Web site, Members page at <http://www.udot.utah.gov/index.php/m=c/tid=659> for the respective e-mail addresses.

AGC Comments: (Use as much space as necessary.)

Sent out via e-mail Sept. 29, 2005 (No comments received as of October 6, 2005)

ACEC Comments: (Use as much space as necessary.)

Sent out via e-mail Sept. 29, 2005 (No comments received as of October 6, 2005)

- D. Stakeholders? From the list provided, document the stakeholders contacted, detailing: the company, name of contact, how contacted (by phone, email, hard copy, or in person), concerns, and comments of the change. Stakeholders:

Note: There is a two-week response time set for this item. Allow Stakeholders two weeks to process and respond to coordination requests. All areas should try to complete review and comment as soon as possible but within two weeks.

In-house (for example, preconstruction, materials, construction, safety, design, maintenance) (Include all applicable in-house areas even if not listed above.)

Construction Engineers : Sent out via e-mail Sept. 29, 2005 (No comments received as of October 6, 2005)

Contractors (Any additional contacts beyond "C" above.)

Suppliers: Sent out via e-mail Sept. 29, 2005 (No comments received as of October 6, 2005)

Consultants (as required) (Any additional contacts beyond "C" above.)

FHWA (To be accomplished as part of the two-week process before submitting to the Standards and Specifications Section for inclusion on the Standards Committee agenda.) (This is in addition to the requirements of UDOT Policy 08A5-1, procedure 08A5-1.3.)

No comments received as of October 6, 2005

Others (as appropriate)

- E. Minimum Sampling and Testing Guide (MS&T Guide)? (Consider all impacts and possible changes to the MS&T Guide during the preparation process. Coordinate with the Department Materials Engineer as appropriate. List all impacts and action taken.)

NOT REQUIRED

- F. Costs? (Estimates are acceptable.)

1. Additional costs to average bid item price. Average bid price has not been established. Estimated cost is \$2300.  
Typical transition has an average bid price of \$1345.00
2. Operational (For example, maintenance, materials, equipment, labor, administrative, programming).

NO CHANGE

3. Life cycle cost. NO CHANGE

- G. Benefits? (Provide details that can be used to complete a Cost – Benefit Analysis.)  
(Estimates are acceptable.)

- H. Safety Impacts?  
Transition has completed NCHRP 350 crash test requirements and have FHWA approval for use.

- I. History? Address issues relating to the current usage of the item and past reviews, approvals, and/or disapprovals. See item A above.

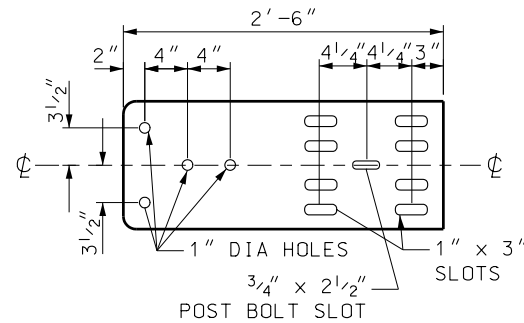
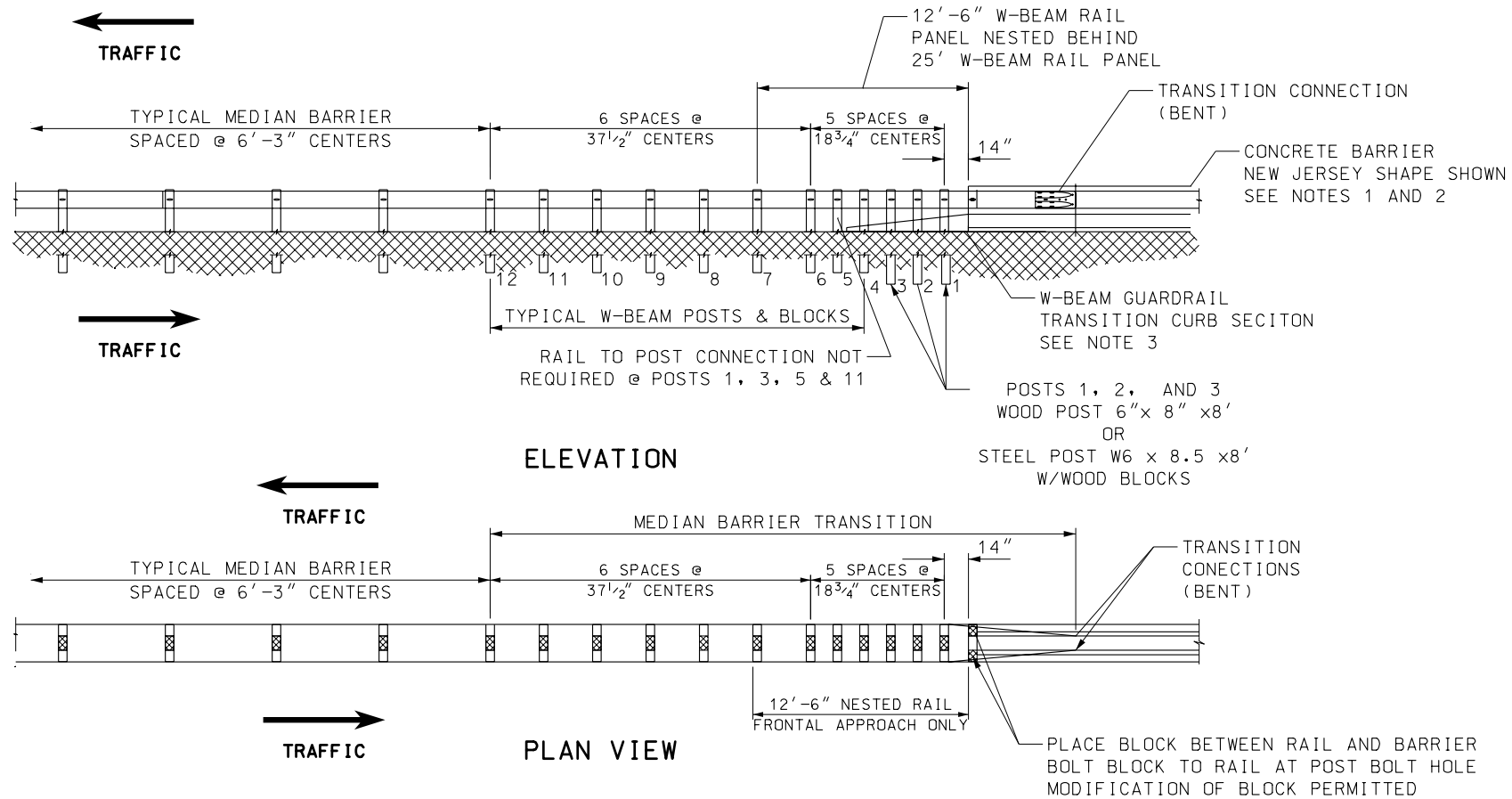
## Priority Explanation

Enter the appropriate priority in the box on the first page of the document.

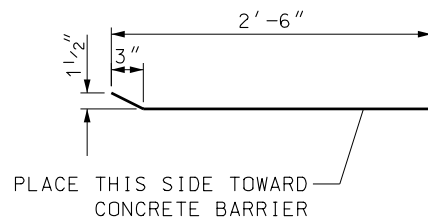
- Priority 1      Upon posting, this impacts all projects in construction and design with a Change Order, Addenda, and immediate change to projects being advertised.
- Priority 2      Upon posting, this impacts projects being advertised.
- Priority 3      Upon posting, the approved standard takes effect **four weeks** later for projects being advertised.

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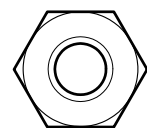
11-OCT-2005 DGN File: L:\Standard Drawings\Internal\2005\Working\Standards\CommitteeFiles\October05\BA040.dgn



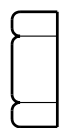
TRANSITION CONNECTION BENT



4 EACH 7/8" x 16" HIGH STRENGTH THREADED ROD

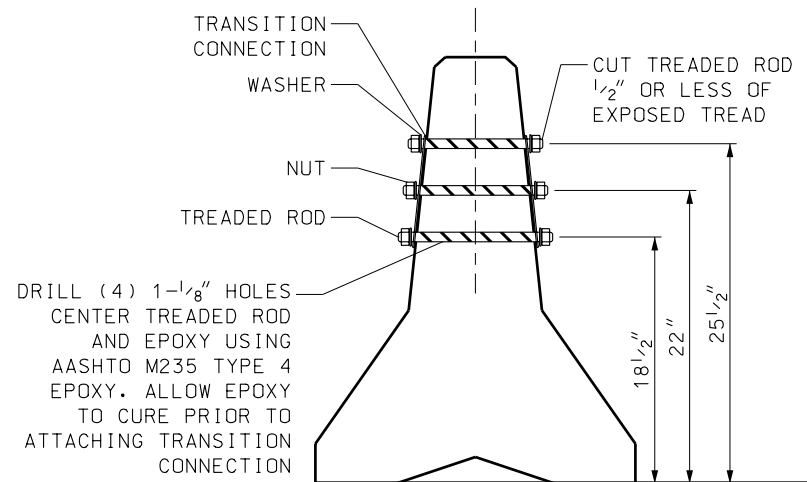


8 EACH 7/8" HEX NUTS

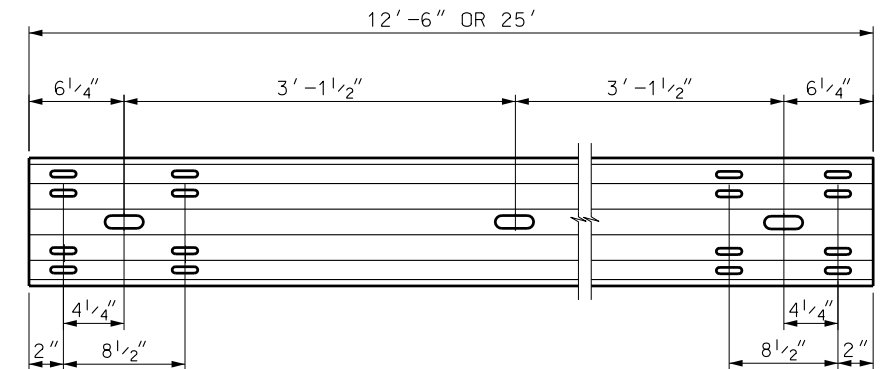


8 EACH 7/8" WASHERS

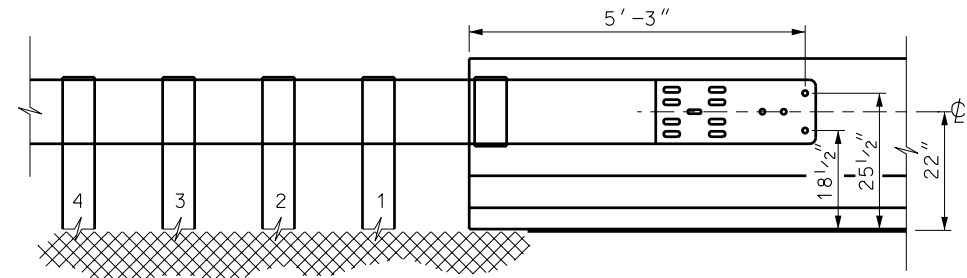
TRANSITION CONNECTION HARDWARE (GALVANIZED)



TRANSITION CONNECTION INSTALLATION DETAIL



RAIL ELEMENT 12 1/2' OR 25' 3'-1 1/2" O.C. CENTER PUNCH



TRANSITION CONNECTION PLACEMENT DETAIL

NOTES:

1. USE MEDIAN BARRIER TRANSITION WHEN ATTACHING W-BEAM MEDIAN BARRIER TO CONCRETE BARRIER OR WHEN ATTACHING A TYPE "C" CRASH CUSHION.
2. USE PRECAST CONSTANT SLOPE TRANSITION, STD DWG, BA 3A, WHEN CONNECTING W-BEAM TRANSITION TO CONSTANT SLOPE BARRIER.
3. USE APPROPRIATE CURB SECTION AS PER STD DWD BA 4C. CURB SECTION REQUIRE FOR FRONT APPROACH TRAFFIC ONLY.

REVISIONS	
1	10/27/05 G.S. NEW DRAWING.

UTAH DEPARTMENT OF TRANSPORTATION  
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION  
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL	DATE
CHAIRMAN STANDARDS COMMITTEE	OCT.27.2005
APPROVED	DATE
DEPUTY DIRECTOR	OCT.27.2005

W-BEAM GUARDRAIL  
MEDIAN BARRIER  
TRANSITION

STD DWG  
BA 4Q

STANDARD DRAWING TITLE

REMARKS

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## Standards Committee Submittal Sheet

Name of preparer: Glenn Schulte

Title/Position of preparer: Safety Specialist

Specification/Drawing/Item Title: CC 5A Grading & Placement Detail Crash Cushion Type C "Brakemaster"  
CC 5B Grading & Placement Detail Crash Cushion Type C "C.A.T.",  
CC 5C Grading & Placement Detail Crash Cushion Type C "FLEAT-MT"

Specification/Drawing Number: CC 5A, CC 5B, CC 5C

**Enter appropriate priority level:**

(See last page for explanation)

3

Sheet not required on editorial or minor changes to standards. Check with Standards Section.

### NOTES:

1. All Submittal Sheets must be completed and sent to the Standards and Specifications Section by the Standards Committee suspense date as shown on their web page.  
(<http://www.udot.utah.gov/index.php/m=c/tid=303>)
2. The Preparer of the Submittal Sheet or the Standards Committee member (or authorized substitute) responsible for the submittal must be present at the Standards Committee meeting and capable of discussing and answering all questions related to the submittal. The item will be postponed to a later meeting if one of these people is not present.
3. Notify the Standards and Specifications Section immediately of any changes that impact the presentation to include absence of sponsor or delay in presentation.

Complete the following: (Use additional pages as needed.)

- A. Why? Detail the reason for changing the Standard (Specification or Drawing), what has initiated a new Standard, or what has caused a new or changed item of interest.

The current drawing had several errors and omissions. The one drawing was trying to incorporate enough information to cover two systems and was not very effective in that regard.

The Brakemaster (CC 5A) has been used on several projects and was installed on traditional compacted road base, but it has been learned that the system tends to settle in the road base, when wet, this may affect the operational capabilities of the system. The system manufacturer requires some additional grading that was not being addressed in the current CC 5.

The C.A.T. (CC 5B) The current drawing addressed most of the requirements of this system, but with the requirements of the Brakemaster and the FLEAT-MT it is felt a separate drawing would better serve the contractor and construction personnel.

The FLEAT MT (CC 5C) was approved in December 2005 for use. This system has some additional grading requirements because it has two impact heads. The two impact heads

require the correct offset for the system to function as designed. Also this system uses a combination of CRT post and shortened breakaway post set in soil tubes, the proper placement of these posts also must be correct for the system to function as designed.

- B. How is Measurement and Payment handled? Existing (from the measurement and payment document), modified, or new measurement and payment to be included with all Standard Specifications or Supplemental Specifications.

NO CHANGE, the pay item will stay the same as the three system will compete with one another.

- C. Stakeholder Notification for AGC and ACEC:

By email provide the AGC and ACEC Standards Committee member a copy of all pertinent information relating to the specification or drawing. Detail all responses below. Indicate if no comments were received.

Note: There is a two-week response time set for this item.

Refer to the Standards Committee Web site, Members page at <http://www.udot.utah.gov/index.php/m=c/tid=659> for the respective e-mail addresses.

AGC Comments: (Use as much space as necessary.)

No comments received as of October 6, 2005

ACEC Comments: (Use as much space as necessary.)

No comments received as of October 6, 2005

- D. Stakeholders? From the list provided, document the stakeholders contacted, detailing: the company, name of contact, how contacted (by phone, email, hard copy, or in person), concerns, and comments of the change. Stakeholders:

Note: There is a two-week response time set for this item. Allow Stakeholders two weeks to process and respond to coordination requests. All areas should try to complete review and comment as soon as possible but within two weeks.

In-house (for example, preconstruction, materials, construction, safety, design, maintenance) (Include all applicable in-house areas even if not listed above.)

No comments received as of October 6, 2005

Construction Engineers

Contractors (Any additional contacts beyond “C” above.)

Suppliers

Consultants (as required) (Any additional contacts beyond “C” above.)

FHWA (To be accomplished as part of the two-week process before submitting to the Standards and Specifications Section for inclusion on the Standards Committee agenda.) (This is in addition to the requirements of UDOT Policy 08A5-1, procedure 08A5-1.3.)

No comments received as of October 6, 2005

Others (as appropriate)

- E. Minimum Sampling and Testing Guide (MS&T Guide)? (Consider all impacts and possible changes to the MS&T Guide during the preparation process. Coordinate with the Department Materials Engineer as appropriate. List all impacts and action taken.)

NOT REQUIRED

- F. Costs? (Estimates are acceptable.)

1. Additional costs to average bid item price. NONE
2. Operational (For example, maintenance, materials, equipment, labor, administrative, programming).

NO CHANGE

3. Life cycle cost.

- G. Benefits? (Provide details that can be used to complete a Cost – Benefit Analysis.) (Estimates are acceptable.)

All systems have been bid against each other and there has been no substantial difference in the system costs.

- H. Safety Impacts?  
All systems have completed NCHRP 350 crash test requirements and have FHWA approval for use.

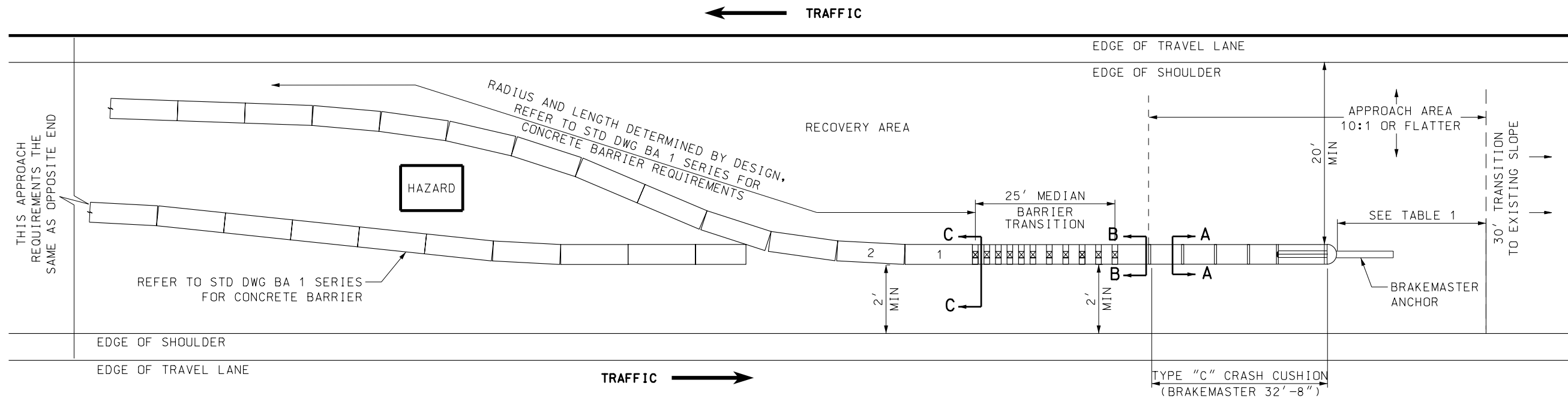
- I. History? Address issues relating to the current usage of the item and past reviews, approvals, and/or disapprovals.

## Priority Explanation

Enter the appropriate priority in the box on the first page of the document.

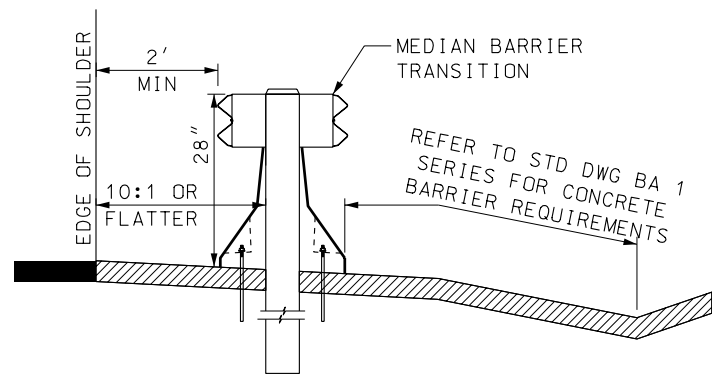
- |            |   |
|------------|---|
| Priority 1 | Upon posting, this impacts all projects in construction and design with a Change Order, Addenda, and immediate change to projects being advertised. |
| Priority 2 | Upon posting, this impacts projects being advertised.   |
| Priority 3 | Upon posting, the approved standard takes effect <b>four weeks</b> later for projects being advertised.   |

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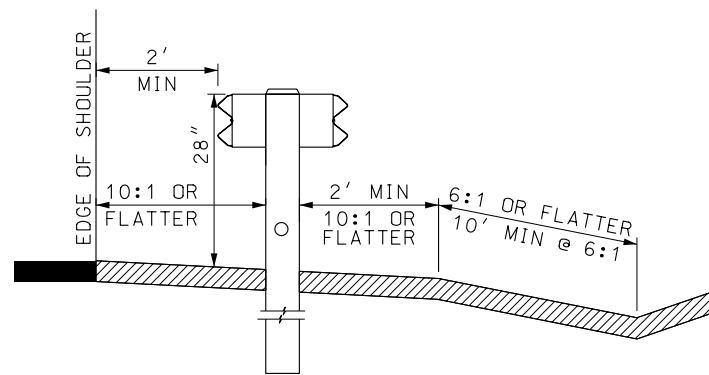


TRAFFIC →

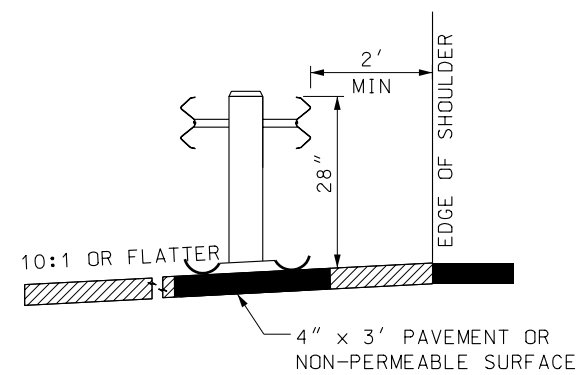
CONCRETE BARRIER INSTALLATION DETAIL



SECTION C-C  
PIN BARRIER SECTION 1 AND 2  
WITH STABILIZATION PINS



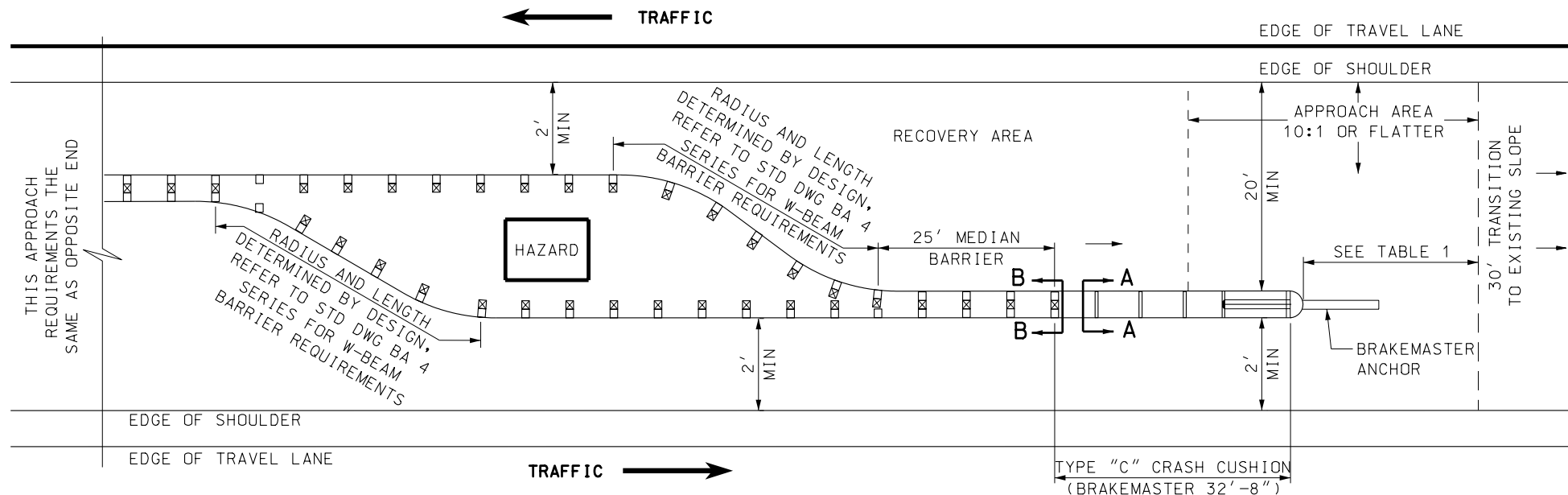
SECTION B-B  
DRILL 2" HOLES IN MEDIAN BARRIER TRANSITION  
OR MEDIAN BARRIER AS SPECIFIED BY MANUFACTURER



SECTION A-A

TABLE 1	
SPEED MPH	MINIMUM LENGTH FEET
LESS THAN 40	70
40 TO 55	100
60 TO 75	150

W-BEAM GUARDRAIL BARRIER INSTALLATION DETAIL



NOTES:

1. THE BRAKEMASTER, MANUFACTURED BY ENERGY ABSORPTION SYSTEM. SEE UDOT'S GUIDELINES FOR SPECIFIC SYSTEM DETAILS.
2. INSTALL SYSTEMS AS PER UDOT'S AND MANUFACTURER'S SPECIFICATIONS.
3. HAVE SHOP DRAWING AVAILABLE ON SITE FOR REFERENCE DURING INSTALLATION.
4. USE 4" NON-PERMEABLE OR PAVE SURFACE FOR BRAKEMASTER SYSTEMS.
5. COMPLETE SLOPE PREPARATION PRIOR TO INSTALLING SYSTEM.
6. CLEAR RECOVERY AND APPROACH AREAS OF ANY FIXED OBJECTS. DO NOT PLACE SIGNS OR POLES IN APPROACH AREA. SIGNS OR POLES PLACED IN THE RECOVERY AREA WILL BE BREAKAWAY AND BE A MINIMUM 10 FEET FROM SYSTEM RAIL ELEMENTS.
7. INSTALL REQUIRED MARKINGS AS PER STD DWG CC 1.

UTAH DEPARTMENT OF TRANSPORTATION  
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION  
SALT LAKE CITY, UTAH

GRADING AND  
PLACEMENT DETAIL  
CRASH CUSHION  
TYPE C  
BRAKEMASTER

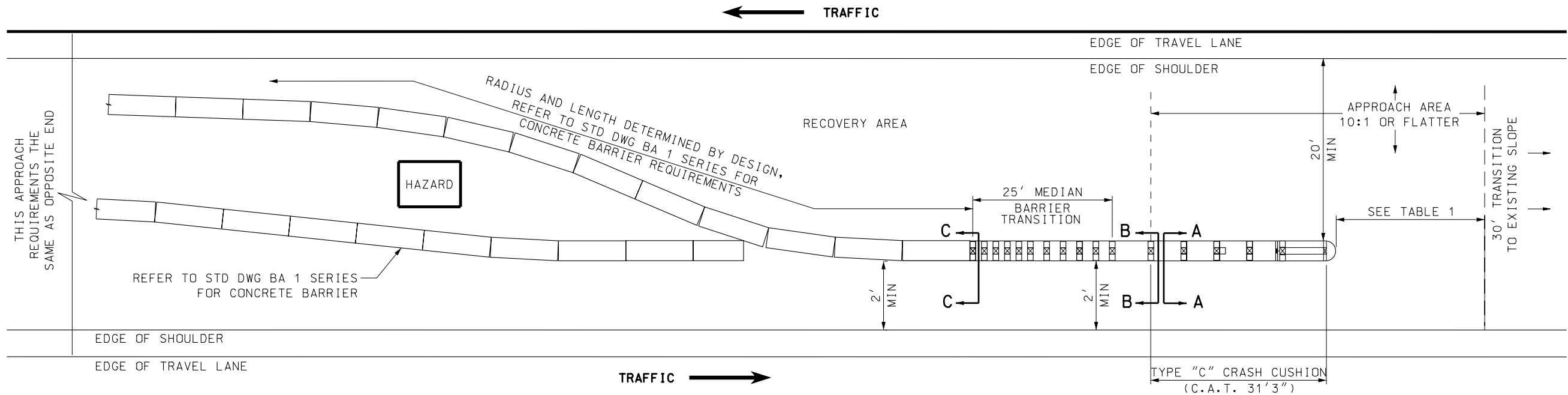
STD DWG  
CC 5A

REVISIONS  
1 10-27-05 GS NEW DRAWING, REPLACES CC 5.

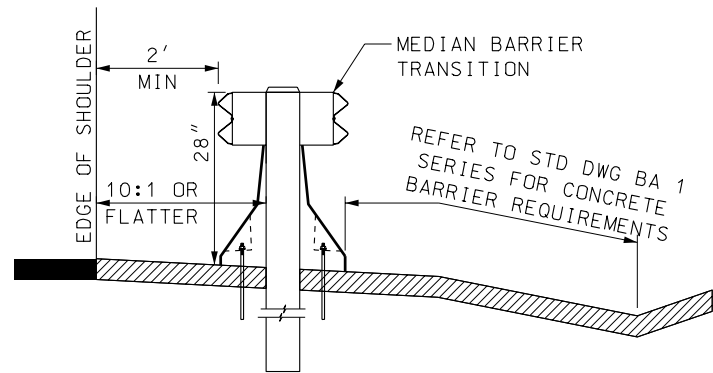
RECOMMENDED FOR APPROVAL  
CHAIRMAN STANDARDS COMMITTEE  
APPROVED  
DEPUTY DIRECTOR  
OCT.27,2005  
DATE  
OCT.27,2005  
DATE  
REMARKS

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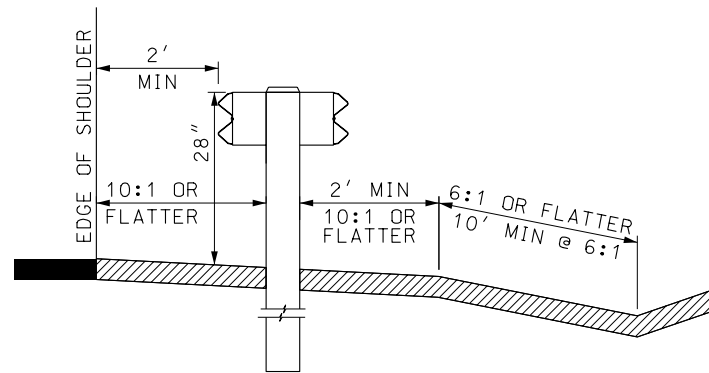
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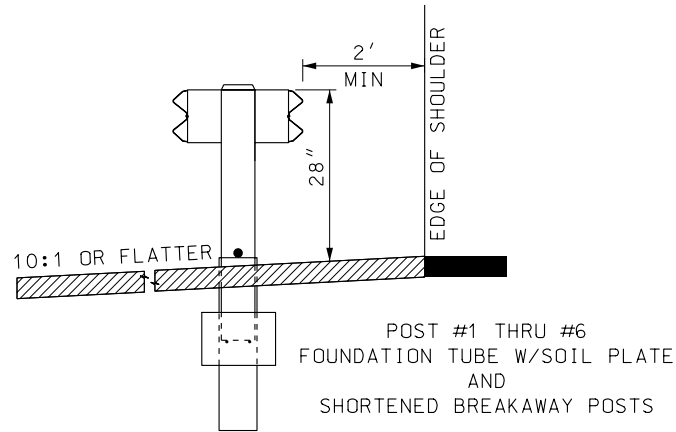
TRAFFIC →  
CONCRETE BARRIER INSTALLATION DETAIL



SECTION C-C  
PIN BARRIER SECTION 1 AND 2  
WITH STABILIZATION PINS



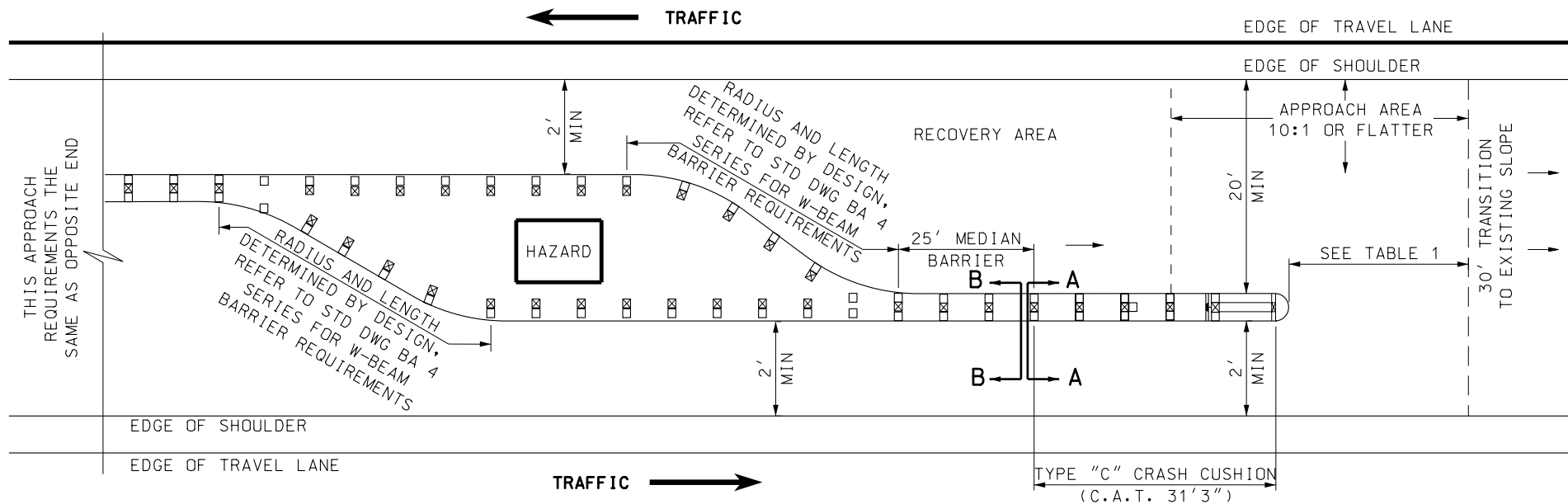
SECTION B-B  
DRILL 2" HOLES IN MEDIAN BARRIER TRANSITION  
OR MEDIAN BARRIER AS SPECIFIED BY MANUFACTURER



SECTION A-A

TABLE 1	
SPEED MPH	MINIMUM LENGTH FEET
LESS THAN 40	70
40 TO 55	100
60 TO 75	150

W-BEAM GUARDRAIL BARRIER INSTALLATION DETAIL



NOTES:

1. THE C.A.T., MANUFACTURED BY TRINITY INDUSTRIES. SEE UDOT'S GUIDELINES FOR CRASH CUSHIONS FOR SPECIFIC SYSTEM DETAILS.
2. INSTALL SYSTEMS AS PER UDOT'S AND MANUFACTURER'S SPECIFICATIONS.
3. HAVE SHOP DRAWING AVAILABLE ON SITE FOR REFERENCE DURING INSTALLATION.
4. USE GRADED AND COMPACTED SURFACE FOR C.A.T. SYSTEMS.
5. COMPLETE SLOPE PREPARATION PRIOR TO INSTALLING SYSTEM.
6. CLEAR RECOVERY AND APPROACH AREAS OF ANY FIXED OBJECTS. DO NOT PLACE SIGNS OR POLES IN APPROACH AREA. SIGNS OR POLES PLACED IN THE RECOVERY AREA WILL BE BREAKAWAY AND BE A MINIMUM 10 FEET FROM SYSTEM RAIL ELEMENTS.
7. INSTALL REQUIRED MARKINGS AS PER STD DWG CC 1.

UTAH DEPARTMENT OF TRANSPORTATION  
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION  
SALT LAKE CITY, UTAH

GRADING AND  
PLACEMENT DETAILS  
CRASH CUSHION  
TYPE C  
C.A.T.

STD DWG  
CC 5B

REVISIONS

NO.	DATE	APPR.	REMARKS
1	10/27/05	G.S.	NEW DRAWING.

RECOMMENDED FOR APPROVAL	OCT. 27, 2005	DATE
CHAIRMAN STANDARDS COMMITTEE	OCT. 27, 2005	DATE
DEPUTY DIRECTOR		

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11-OCT-2005 DGN File: L:\Standard Drawings\Internal\2005\Working\Standards\CommitteeFiles\October05\CC05C.dgn

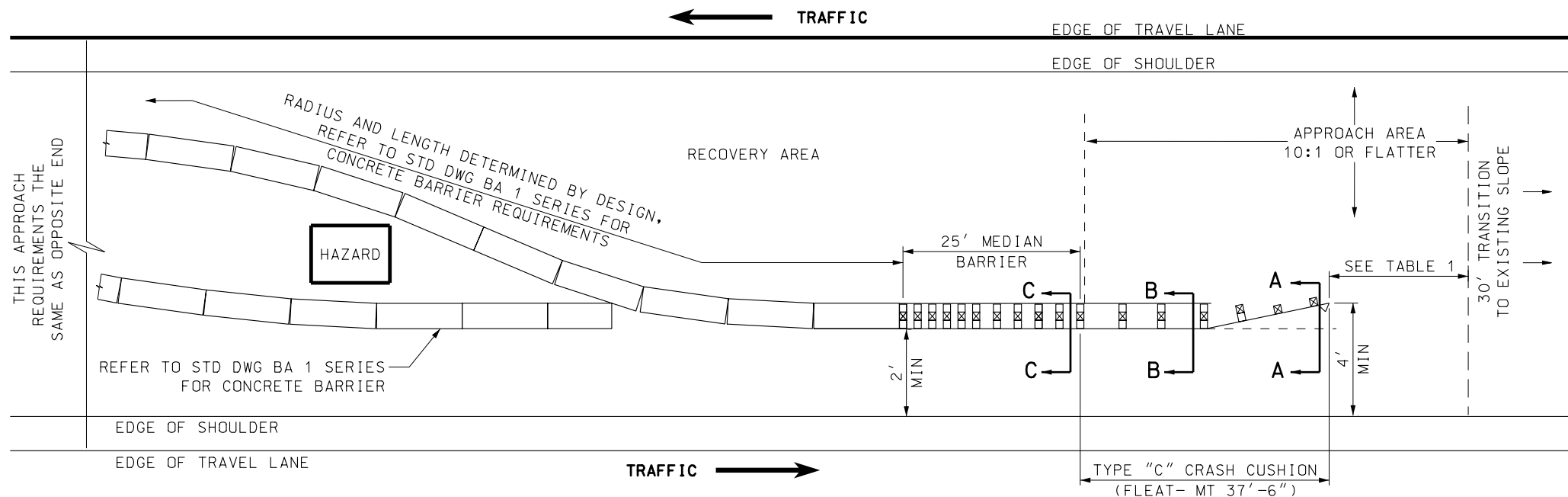
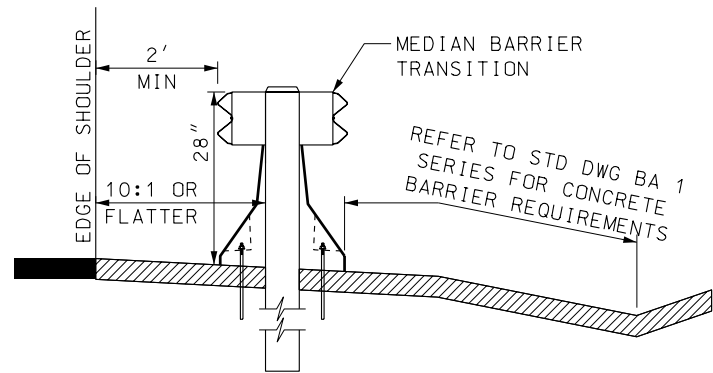
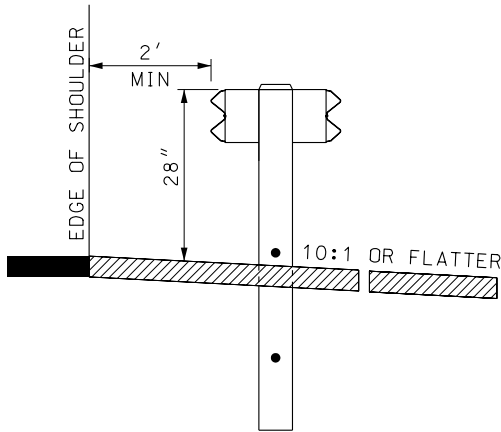


TABLE 1	
SPEED MPH	MINIMUM LENGTH FEET
LESS THAN 40	70
40 TO 55	100
60 TO 75	150

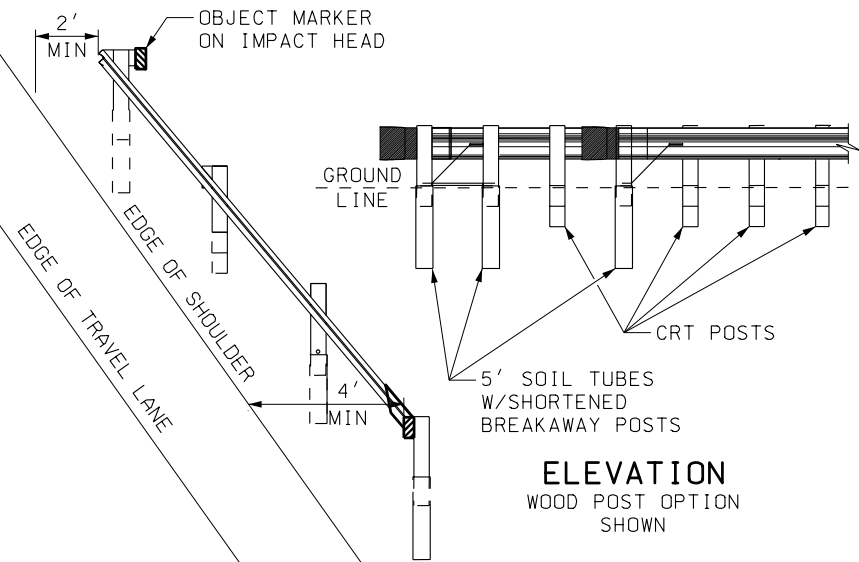
### CONCRETE BARRIER INSTALLATION DETAIL



SECTION C-C  
PIN BARRIER SECTION 1 AND 2  
WITH STABILIZATION PINS

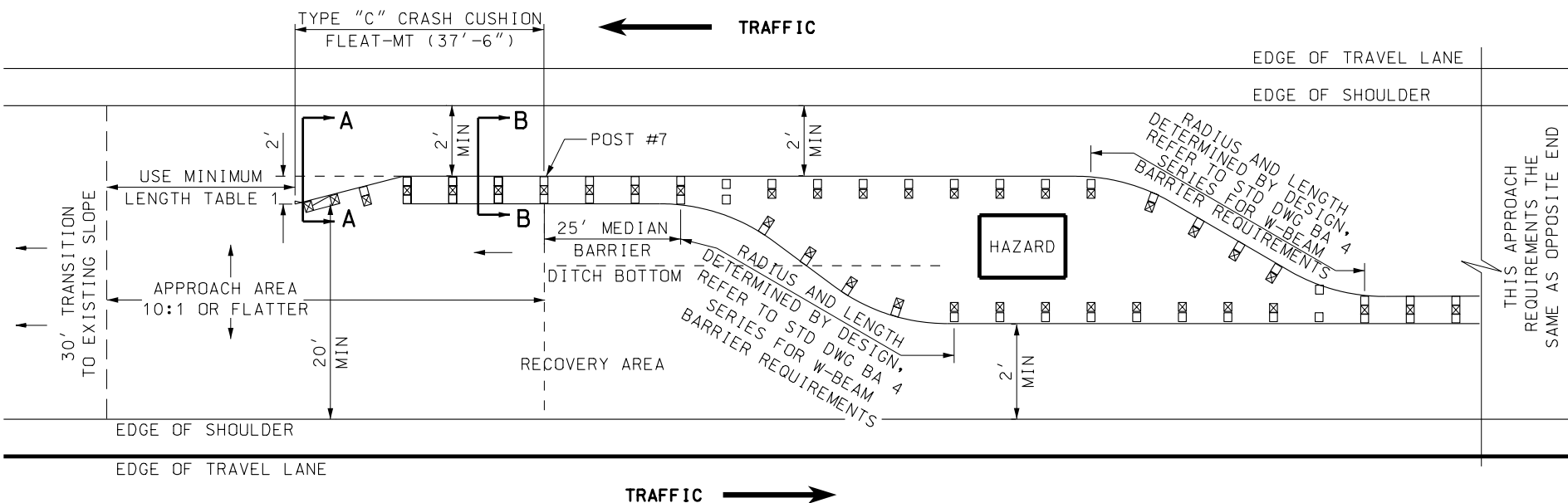


SECTION B-B  
DRILL 2" HOLES IN MEDIAN BARRIER TRANSITION  
OR MEDIAN BARRIER AS SPECIFIED BY MANUFACTURER



SECTION A-A

### W-BEAM GUARDRAIL BARRIER INSTALLATION DETAIL



#### NOTES:

1. THE FLEAT-MT, MANUFACTURED BY ROAD SYSTEMS INC. SEE UDOT'S GUIDELINES FOR SPECIFIC SYSTEM DETAILS.
2. INSTALL SYSTEMS AS PER UDOT'S AND MANUFACTURER'S SPECIFICATIONS.
3. REFER TO UDOT'S GUIDELINES FOR CRASH CUSHIONS FOR APPROVED POST OPTIONS.
4. HAVE SHOP DRAWING AVAILABLE ON SITE FOR REFERENCE DURING INSTALLATION.
5. USE GRADED AND COMPACT SURFACE FOR FLEAT-MT SYSTEMS.
6. COMPLETE SLOPE PREPARATION PRIOR TO INSTALLING SYSTEM.
7. CLEAR RECOVERY AND APPROACH AREAS OF ANY FIXED OBJECTS. DO NOT PLACE SIGNS OR POLES IN APPROACH AREA. SIGNS OR POLES PLACED IN THE RECOVERY AREA WILL BE BREAKAWAY AND BE A MINIMUM 10 FEET FROM SYSTEM RAIL ELEMENTS.
8. INSTALL REQUIRED MARKINGS AS PER STD DWG CC 1 AND THIS DRAWING.

UTAH DEPARTMENT OF TRANSPORTATION  
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION  
SALT LAKE CITY, UTAH

GRADING AND  
PLACEMENT DETAILS  
CRASH CUSHION  
TYPE C  
FLEAT-MT

STD DWG  
CC 5C

REVISIONS

1 10-27-05 G.S. NEW DRAWING.

RECOMMENDED FOR APPROVAL  
CHAIRMAN STANDARDS COMMITTEE  
APPROVED  
DEPUTY DIRECTOR  
OCT.27.2005  
DATE  
OCT.27.2005  
DATE  
REMARKS

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## Standards Committee Submittal Sheet

Name of preparer: Michael Fazio

Title/Position of preparer: Chief Hydraulics Engineer

Specification/Drawing/Item Title: Plastic Pipe Culvert Bedding

Specification/Drawing Number: DG-5

### Enter appropriate priority level:

(See last page for explanation)

3

Sheet not required on editorial or minor changes to standards. Check with Standards Section.

### NOTES:

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(<http://www.udot.utah.gov/index.php/m=c/tid=303>)
2. The Preparer of the Submittal Sheet or the Standards Committee member (or authorized substitute) responsible for the submittal must be present at the Standards Committee meeting and capable of discussing and answering all questions related to the submittal. The item will be postponed to a later meeting if one of these people is not present.
3. Notify the Standards and Specifications Section immediately of any changes that impact the presentation to include absence of sponsor or delay in presentation.

Complete the following: (Use additional pages as needed.)

- A. Why? Detail the reason for changing the Standard (Specification or Drawing), what has initiated a new Standard, or what has caused a new or changed item of interest.

The current standard drawing is inaccurate and out of date not meeting current AASHTO requirements for Plastic Pipe Culverts. The current standard addresses all flexible pipes.

- B. How is Measurement and Payment handled? Existing (from the measurement and payment document), modified, or new measurement and payment to be included with all Standard Specifications or Supplemental Specifications.

The measurement and payment is part of the pipe's payment. The changes to the standard drawing will not affect the current measurement and payment of the pipe.

- C. Stakeholder Notification for AGC and ACEC:

*A pdf file of DG-5 was sent to Mont Wilson and Tyler Yorgason by e-mail.  
In addition the following individuals were contacted:*

By email provide the AGC and ACEC Standards Committee member a copy of all pertinent information relating to the specification or drawing. Detail all responses below. Indicate if no comments were received.

Note: There is a two-week response time set for this item.

Refer to the Standards Committee Web site, Members page at <http://www.udot.utah.gov/index.php/m=c/tid=659> for the respective e-mail addresses.

AGC Comments: (Use as much space as necessary.)

No comments

ACEC Comments: (Use as much space as necessary.)

Tyler Yorgason sent the following comments:

1. *Detail "B" is difficult to understand. What is the purpose?*
2. *What is the material in the hatched area on the top of Detail "A", concrete or the entire pavement section?*

- D. Stakeholders? From the list provided, document the stakeholders contacted, detailing: the company, name of contact, how contacted (by phone, email, hard copy, or in person), concerns, and comments of the change. Stakeholders:

Note: There is a two-week response time set for this item. Allow Stakeholders two weeks to process and respond to coordination requests. All areas should try to complete review and comment as soon as possible but within two weeks.

In-house (for example, preconstruction, materials, construction, safety, design, maintenance) (Include all applicable in-house areas even if not listed above.)

Construction Engineers

*Karl Verhaeren*

*Rob Wight*

Contractors (Any additional contacts beyond "C" above.)

Suppliers

*Jim Goddard, ADS Pipe*

*Jon Sikle, ADS Pipe*

Consultants (as required) (Any additional contacts beyond "C" above.)

FHWA (To be accomplished as part of the two-week process before submitting to the Standards and Specifications Section for inclusion on the Standards Committee agenda.) (This is in addition to the requirements of UDOT Policy 08A5-1, procedure 08A5-1.3.)

Others (as appropriate)

<a href="#">Boyd Wheeler</a>	<a href="#">Brandon Tucker</a>
<a href="#">Brent Schvaneveldt</a>	<a href="#">Brent Jensen</a>
<a href="#">Carlos Machado</a>	<a href="#">Daryl Friant</a>
<a href="#">Clark Mackay</a>	<a href="#">Denis Stuhff</a>
<a href="#">Dennis Simper</a>	<a href="#">John Higgins</a>
<a href="#">Karl Verhaeren</a>	<a href="#">Kris Peterson</a>
<a href="#">Keith Brown</a>	<a href="#">Marwan Farah</a>
<a href="#">Rex Harris</a>	<a href="#">Robb Edgar</a>
<a href="#">Rob Wight</a>	<a href="#">Tim Ularich</a>
<a href="#">Scott Andrus</a>	<a href="#">Todd Jensen</a>
<a href="#">Tim Rose</a>	<a href="#">Paul Egbert</a>

Boyd Wheeler provided the attached comments.

John Higgins said:

*Note 4 In these areas where hand tamping is required - how much compaction is required?*

*Notes 6, 10, 11, 12 and 13 refer to the bedding. I would combine these notes - it will eliminate redundancy.*

*Note 15 - you want 12 inches width total or 12 inches each side. The way it reads now is 12 inches total.*

E. Minimum Sampling and Testing Guide (MS&T Guide)? (Consider all impacts and possible changes to the MS&T Guide during the preparation process. Coordinate with the Department Materials Engineer as appropriate. List all impacts and action taken.)

N/A

F. Costs? (Estimates are acceptable.)

Negligible changes – the new detail clarifies what contractors are supposed to do already.

1. Additional costs to average bid item price.
2. Operational (For example, maintenance, materials, equipment, labor, administrative, programming).
3. Life cycle cost.

G. Benefits? (Provide details that can be used to complete a Cost – Benefit Analysis.) (Estimates are acceptable.)

*The detail is simpler and spells out clearly what the contractor has to do when installing plastic pipes.*

H. Safety Impacts?

*No impacts to safety*

I. History? Address issues relating to the current usage of the item and past reviews, approvals, and/or disapprovals.

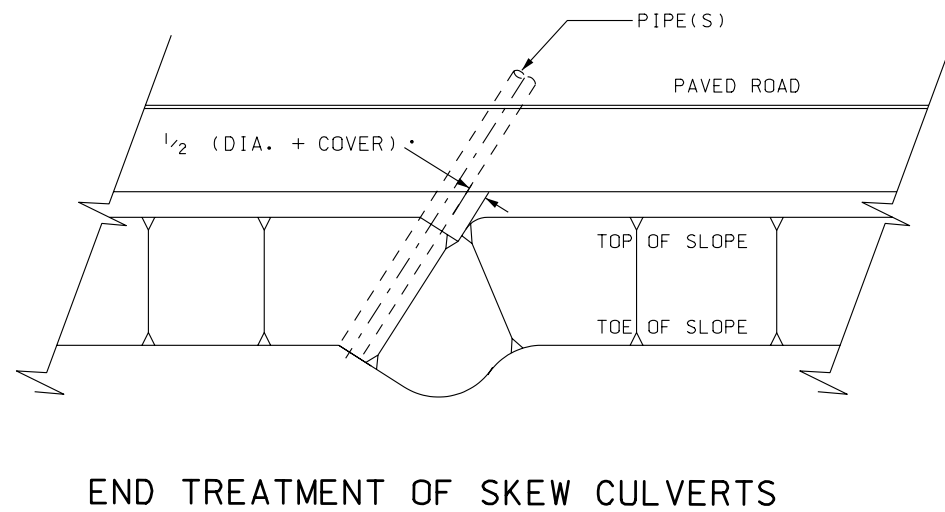
*The current details lumps installation requirements for all flexible pipe, making it hard to understand what to do for a steel or plastic pipe. The new details incorporates the construction requirement from the LRFD Construction Manual.*

## Priority Explanation

Enter the appropriate priority in the box on the first page of the document.

- |            |   |
|------------|---|
| Priority 1 | Upon posting, this impacts all projects in construction and design with a Change Order, Addenda, and immediate change to projects being advertised. |
| Priority 2 | Upon posting, this impacts projects being advertised.   |
| Priority 3 | Upon posting, the approved standard takes effect <b>four weeks</b> later for projects being advertised.   |

11-OCT-2005



1. USE ONLY TRENCH INSTALLATION WITH HDPE & PVC PIPE.
2. USE STD DRW DG 3 IN CONJUNCTION WITH THIS DETAIL.
3. REFER TO DETAIL "A" FOR DEFINITION OF BEDDING, HAUNCHING, INITIAL BACKFILL, PIPE EMBEDMENT ZONE AND TRENCH WIDTH.
4. USE COMPACTION EQUIPMENT SMALLER THAN THE TRENCH WIDTH BETWEEN THE PIPE AND THE TRENCH WALL. FULLY COMPACT THE HAUNCH AREA. HAND TAMP AREAS WHERE COMPACTION EQUIPMENT CANNOT COMPACT.
5. EXCAVATE A TRENCH THAT IS EQUAL OR GREATER IN WIDTH THAN SHOWN IN TABLE 1. INCREASE THE TRENCH WIDTH TO 2 FEET MINIMUM ON EACH SIDE OF THE PIPE WHEN THE EXISTING SOIL DOES NOT MEET THE REQUIREMENTS OF NOTE 6.
6. USE BEDDING AND STRUCTURAL BACKFILL MEETING REQUIREMENTS OF AASHTO M 145, A-1, A-2-4, A-2-5 OR A-3 SOILS OR CONTROLLED LOW STRENGTH MORTAR (CLSM) OR CONTROLLED DENSITY FILL (CDF). USE ONLY WELL GRADED BEDDING AND BACKFILL WITH A MAXIMUM PARTICLE SIZE OF 1.5 INCHES OR 50% OF THE WIDTH OF THE PIPE EXTERNAL CORRUGATIONS, FREE OF ORGANIC STONES LARGER THAN 1.5 INCHES IN THE GREATEST DIMENSION, OR FROZEN LUMPS.
7. PROVIDE BACKFILL WITH MOISTURE CONTENT NOT LESS THAN 3% OR NOT MORE THAN 2% OF THE OPTIMAL MOISTURE CONTENT. UNIFORMLY SPREAD BACKFILL IN LAYERS NOT TO EXCEED 8 INCHES (NON-COMPACTED DEPTH) AND COMPACT TO 90% MAXIMUM LABORATORY DENSITY BEFORE PLACING THE NEXT LAYER. BRING UP LAYERS UNIFORMLY ON BOTH SIDES OF THE PIPE.
8. IN SHALLOW COVER INSTALLATIONS (2 FEET OR LESS), USE UTBC AS BACKFILL. COMPACT UTBC BACKFILL TO A DENSITY EQUAL TO PROJECT PAVEMENT SECTION REQUIREMENTS.  
FOR DEPTH OF BURIAL GREATER THAN 2 FEET, COMPACT BACKFILL TO 90% OF THE AASHTO T 99 LAB DENSITY OR GREATER.
9. DO NOT DISTURB INSTALLED PIPE OR ITS EMBEDMENT OR LEAVE VOIDS WHEN USING TRENCH BOXES AND SHIELDS.
10. PREVENT FLOTATION WHEN USING CLSM OR CDF AS BACKFILL.
11. WHEN USING CLSM OR CDF AS BEDDING & BACKFILL, PROVIDE A TRENCH WITH MINIMUM WIDTH EQUAL TO THE PIPE OUTSIDE DIAMETER PLUS 12 INCHES ON EACH SIDE OF THE PIPE.
12. PLACE PIPES STARTING AT THE DOWNSTREAM END.
13. SUBMIT MIX DESIGN FOR CDF OR CLSM TO THE ENGINEER FOR APPROVAL.  
PREVENT FLOTATION WHEN USING CLSM OR CDF.

PIPE NOMINAL SIZE ( INCHES )	MINIMUM TRENCH WIDTH ( FEET )
1 8	3 . 7
2 4	4 . 6
3 0	5 . 5
3 6	6 . 4
4 2	7 . 3
4 8	8 . 2
5 4	9 . 1
6 0	1 0 . 0

[illegible]

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## Standards Committee Submittal Sheet

Name of preparer: Michael Fazio

Title/Position of preparer: Chief Hydraulics Engineer

Specification/Drawing/Item Title: Precast Concrete Drainage Structures

Specification/Drawing Number: 02633

### Enter appropriate priority level:

(See last page for explanation) 3

Sheet not required on editorial or minor changes to standards. Check with Standards Section.

### NOTES:

1. All Submittal Sheets must be completed and sent to the Standards and Specifications Section by the Standards Committee suspense date as shown on their web page.  
(<http://www.udot.utah.gov/index.php/m=c/tid=303>)
2. The Preparer of the Submittal Sheet or the Standards Committee member (or authorized substitute) responsible for the submittal must be present at the Standards Committee meeting and capable of discussing and answering all questions related to the submittal. The item will be postponed to a later meeting if one of these people is not present.
3. Notify the Standards and Specifications Section immediately of any changes that impact the presentation to include absence of sponsor or delay in presentation.

Complete the following: (Use additional pages as needed.)

- A. Why? Detail the reason for changing the Standard (Specification or Drawing), what has initiated a new Standard, or what has caused a new or changed item of interest.

*This is a new standard. Currently there is not a standard specification for precast concrete drainage structures. Increasingly contractors are placing precast concrete drainage structures in UDOT project without clear guidelines or guidance for acceptable installations. The Department experienced several failures of these installation that become a maintenance nuisance.*

- B. How is Measurement and Payment handled? Existing (from the measurement and payment document), modified, or new measurement and payment to be included with all Standard Specifications or Supplemental Specifications.

*There are no current requirements for measurement and payment of precast concrete structures. The proposed measurement and payment would be by the each, with incremental unit price per foot for larger units.*

C. Stakeholder Notification for AGC and ACEC:

*A doc file of the specification was sent to Mont Wilson and Tyler Yorgason by e-mail.*

By email provide the AGC and ACEC Standards Committee member a copy of all pertinent information relating to the specification or drawing. Detail all responses below. Indicate if no comments were received.

Note: There is a two-week response time set for this item.

Refer to the Standards Committee Web site, Members page at <http://www.udot.utah.gov/index.php/m=c/tid=659> for the respective e-mail addresses.

AGC Comments: (Use as much space as necessary.)

No comments

ACEC Comments: (Use as much space as necessary.)

No comments

D. Stakeholders? From the list provided, document the stakeholders contacted, detailing: the company, name of contact, how contacted (by phone, email, hard copy, or in person), concerns, and comments of the change. Stakeholders:

Note: There is a two-week response time set for this item. Allow Stakeholders two weeks to process and respond to coordination requests. All areas should try to complete review and comment as soon as possible but within two weeks.

In-house (for example, preconstruction, materials, construction, safety, design, maintenance) (Include all applicable in-house areas even if not listed above.)

Construction Engineers

Contractors (Any additional contacts beyond "C" above.)

Suppliers

*Travis Jackumsen – Geneva Pipe - Team Member*  
*Gerry Rasmussen – AMCOR – Team Member*

Consultants (as required) (Any additional contacts beyond “C” above.)

*Randy Wahlen – Concrete Pipe Association – Team Member*

FHWA (To be accomplished as part of the two-week process before submitting to the Standards and Specifications Section for inclusion on the Standards Committee agenda.)  
(This is in addition to the requirements of UDOT Policy 08A5-1, procedure 08A5-1.3.)

Others (as appropriate)

<a href="#"><u>Boyd Wheeler</u></a>	<a href="#"><u>Brandon Tucker</u></a>
<a href="#"><u>Brent Schvaneveldt</u></a>	<a href="#"><u>Brent Jensen</u></a>
<a href="#"><u>Carlos Machado</u></a>	<a href="#"><u>Daryl Friant</u></a>
<a href="#"><u>Clark Mackay</u></a>	<a href="#"><u>Denis Stuhff</u></a>
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<a href="#"><u>Keith Brown</u></a>	<a href="#"><u>Marwan Farah</u></a>
<a href="#"><u>Rex Harris</u></a>	<a href="#"><u>Robb Edgar</u></a>
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<a href="#"><u>Scott Andrus</u></a>	<a href="#"><u>Todd Jensen</u></a>
<a href="#"><u>Tim Rose</u></a>	<a href="#"><u>Paul Egbert</u></a>

*Boyd Wheeler was part of the team writing the new spec.*

- E. Minimum Sampling and Testing Guide (MS&T Guide)? (Consider all impacts and possible changes to the MS&T Guide during the preparation process. Coordinate with the Department Materials Engineer as appropriate. List all impacts and action taken.)

*The new spec requires that plant supplying drainage structures be part of UDOT pre-approved plants. These plants will undergo independent testing of their product according to the program.*

- F. Costs? (Estimates are acceptable.)

*The specification will help reduce the cost by allowing standardization of precast drainage structures furnished to UDOT.*

1. Additional costs to average bid item price.  
*Reduced costs*

2. Operational (For example, maintenance, materials, equipment, labor, administrative, programming).

*Better products and reduced maintenance because of the new requirements to seal pipe connections and improve the overall quality of the product*

3. Life cycle cost.

*Reduced life cost. Material will last longer because of improved quality controlled from pre-approved plants.*

- G. Benefits? (Provide details that can be used to complete a Cost – Benefit Analysis.)  
(Estimates are acceptable.)

*Better products to the Department, easier installation, easier method of payment.*

- H. Safety Impacts?

*No impacts to safety*

- I. History? Address issues relating to the current usage of the item and past reviews, approvals, and/or disapprovals.

*Currently contractors are installing precast drainage products without any specifications. Many products come to the project in poor conditions. There have been some pavement failures because of the lack of specification requirements. Currently the Department pays for drainage boxes by the weight of steel and volume of concrete. This method of payment is time consuming and unreliable.*

## Priority Explanation

Enter the appropriate priority in the box on the first page of the document.

- |            |   |
|------------|---|
| Priority 1 | Upon posting, this impacts all projects in construction and design with a Change Order, Addenda, and immediate change to projects being advertised. |
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| Priority 3 | Upon posting, the approved standard takes effect <b>four weeks</b> later for projects being advertised.   |

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**Supplemental Specification  
2005 Standard Specification Book**

**Section 02633**

**PRECAST CONCRETE DRAINAGE STRUCTURES**

**Add Section 02633:**

**PART 1      GENERAL**

**1.1      SECTION INCLUDES**

- A.      Materials and procedures for constructing, delivering and installing precast concrete drainage structures from the CB series of the Standard Drawings.

**1.2      RELATED SECTIONS**

- A.      Section 00555: Prosecution and Progress
- B.      Section 02056: Common Fill
- C.      Section 02317: Structural Excavation
- D.      Section 02610: Pipe, Pipe-Arch, Structural Plate Pipe, and Structural Pipe Arch
- E.      Section 02635: Grates, Solid Covers, Frames, and Manhole Steps
- F.      Section 02645: Precast Concrete Box Culvert
- G.      Section 03055: Portland Cement Concrete
- H.      Section 03056: Self-Consolidating Concrete (Special Provision)
- I.      Section 03152: Concrete Joint Control
- J.      Section 03211: Reinforcing Steel and Welded Wire
- K.      Section 03310: Structural Concrete
- L.      Section 03390: Concrete Curing

### **1.3 REFERENCES**

- A. AASHTO M 198: Joints for Circular Concrete Sewer and Culvert Pipe Using Flexible Watertight Gaskets
- B. AASHTO M 199: Precast Reinforced Concrete Manhole Sections
- C. AASHTO M 213: Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types)
- D. AASHTO M 235: Epoxy Resin Adhesives
- E. AASHTO M 315: Joints for Circular Concrete Sewer and Culvert Pipes Using Rubber Gaskets
- F. ASTM C 443: Joints for Concrete Pipe and Manholes, Using Rubber Gaskets
- G. ASTM C 478: Precast Reinforced Concrete Manhole Sections
- H. ASTM C 578: Rigid, Cellular Polystyrene Thermal Insulation
- I. ASTM C 857: Standard Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures
- J. ASTM C 858: Standard Specification for Underground Precast Concrete Utility Structures
- K. ASTM C 891: Installation of Underground Precast Concrete Utility Structures
- L. UDOT Quality Management Plans

### **1.4 DEFINITIONS**

- A. This specification is applicable for the following defined products:
  - 1. Catch Basin/Drop Inlet – A structure accepting drainage from gutters or medians or other channels and discharging the water through a conduit. Common usages are grated inlets, curb openings or combination inlets. See CB series of the Standard Drawing for shape and dimensions of Standard Catch Basins.

2. Inlet – Consider three definitions: 1. A grated surface connection to a closed conduit such as a storm drain; (see Catch Basin) 2. A structure at the upstream end of a cross culvert; 3. The upstream end of any structure through which water may flow. Inlets may be located in such places as along the roadway, a gutter, the highway median, or a field.
3. Manhole - A circular structure by which one may access a drainage system. A structure that simplifies maintenance joining pipes. Also referred to as an access hole. See CB series of the Standard Drawings for the Standard Detail for a Manhole.

## **1.5 ACCEPTANCE**

- A. Furnish only precast drainage structures manufactured by approved precasting plants that meet this section and related standard drawing requirements. Pre-qualify the fabricator as a supplier of pre-cast concrete products in accordance with the Quality Management Plan: Precast-Prestressed Concrete Structures.
- B. Repair or replace to the satisfaction of the Engineer any precast structure delivered damaged that does not conform to the above requirements or that has the following defects:
  1. Fractures or cracks passing through the wall, except for a single end crack that does not exceed the depth of the joint.
  2. Defects showing improper proportioning, mixing, or molding.
  3. Honeycombing and open texture.
  4. Damaged or cracked ends that prevent joining manhole/inlets grade rings and sections.
  5. Any continuous crack having a surface width of 0.01 inch or more that extends more than 12 inches anywhere on the wall.
  6. For grade rings or similar structures – limit cracks or fractures according ASTM C 478.
- C. Furnish precast structures that are plumb and square within 1/8 inch per foot so that precast adjoining elements fit.
- D. Furnish precast structures marked with date of casting and supplier identification.
- E. Vacuum test each precast structure that doesn't meet the UDOT inspectors approval.

## **1.6 SUBMITTALS**

- A. Provide positive verification that the structures are being furnished by the Department's approved prefab plants.

- B. Submit a Certificate of Compliance from UDOT Central Materials at delivery.
- C. Submit the Precast Concrete Mix design for approval as required in Section 03055.

## **PART 2 PRODUCTS**

### **2.1 CONCRETE**

- A. Wet cast - Class AA-AE, see Section 03055.
- B. Dry cast – Submit a mix design for approval.
  - 1. Minimum cement content: 470 lb/cy
  - 2. Maximum water/cement ratio: 0.4
- C. Self Consolidating Concrete – Follow Section 03056 (Special Provision).

### **2.2 REINFORCING STEEL AND WELDED WIRE (COATED)**

- A. Refer to Section 03211.

### **2.3 STRUCTURAL CONCRETE**

- A. Refer to section 03310

### **2.4 JOINTS AND SEALERS**

- A. Preformed Joint Filler: AASHTO M 213.

### **2.5 WATERSTOPS**

- A. Refer to Section 03152.

### **2.6 RIGID PLASTIC FOAM**

- A. Use preformed extruded cellular polystyrene thermal insulation material that has a water absorption property of 0.3 or less.
- B. Refer to ASTM C 578.

## **2.7 CURING COMPOUND**

- A. Follow Section 03390.

## **2.8 FORMS**

- A. Use plywood, wood, metal, glass, or a combination of these materials.

## **2.9 GASKETS AND JOINT SEALANTS FOR CONNECTING PRECAST SECTIONS**

- A. Furnish gaskets for sealing precast sections that meet ASTM C 443 requirements.
- B. Furnish gaskets for sealing precast concrete manholes that meet AASHTO M 315.
- C. Furnish epoxy resin adhesive according to AASHTO M 235.

## **2.10 MANHOLE/FRAME GASKET**

- A. Place between the manhole frame and the concrete risers  $\frac{3}{4}$  inch diameter minimum extruded rope Type B flexible plastic gaskets that meet AASHTO M 198 requirements.

## **2.11 JOINTING MASTIC**

- A. Furnish a water resistant elastic jointing mastic of plastic bituminous materials and inert fillers that when applied to a vertical metal surface and heated to 120 degrees F does not loose slump or plasticity.
- B. Furnish joint mastic that can be applied evenly and adhere a proper temperature range of 40 to 120 degree F or higher.

## **2.12 PIPE CONNECTION**

- A. Follow Section 02610.
- B. Clean and prepare the mating surfaces before assembly of pipes with the precast structure.
- C. Use one of the following methods to connect the pipe(s) to the precast structure:
  - 1. Pipe boot according to pipe manufacturer specifications for pipe type connecting to the drainage structure.

2. Non-shrink grout to seal the pipe connection with the drainage structure.

### **2.13 GRATES, SOLID COVERS, FRAMES, AND MANHOLE STEPS**

- A. Follow Section 02635.

### **2.14 PRECAST CULVERTS**

- A. Follow Section 02645.

### **2.15 PRECAST PIPES**

- A. Follow Section 02610.

## **PART 3 EXECUTION**

### **3.1 DESIGN**

- A. Manholes: Furnish precast concrete manholes that are designed for HL 93 and that meet ASTM C 478 requirements, having self-centering watertight joints that meet ASTM C 443 requirements.
- B. Inlets: Furnish precast inlets designed for HL 93, and meeting AASHTO M 199 requirements.
- C. Grade Rings/Catch Basin Grade Sections: Furnish grade rings or catch basin grade adjustment that is designed for HL 93, and according to ASTM C 478, with anchor bolt-holes as shown on the standard drawings.
- D. Inlet and Boxes: Furnish precast concrete drainage structures conforming to ASTM C 857.

### **3.2 PREPARATION**

- A. Follow Section 00555. Furnish factory cast structures free of voids, cracks, with beveled corners and edges. Securely attach all inserts in the proper location. Do not cast on the project site. Prevent cold joints in the structure. Place concrete continuously.
- B. Manufacture precast structures according to applicable requirements of ASTM C 858, and as modified by this Section.

- C. Cast into the structure, or insert at the place of manufacture, wall sleeves, gaskets or piping, sumps, steps, access hatches, and any other inserts as shown on the plans or standard drawings, except as approved by the Engineer.
- D. Use care when joining precast elements in cold weather. Do not force joints together with mechanical equipment. Sufficiently warm all sealing materials to flow without causing damage to precast joint elements.
- E. Furnish structures with appropriate openings for connecting pipe. Cast or cut structure openings. Do not expose rebars or reduce rebar covering at openings.

### **3.3 HANDLING**

- A. Ship precast units when 28-day compressive strength has been acquired according to UDOT Central Materials Requirements.
- B. Use proper equipment to handle and ship precast units. Protect the unit from any damage. Replace units at no additional cost to UDOT.
- C. Do not modify precast units in the field by cutting or enlarging holes or any other changes without the manufacturer's and the Engineer specific approval. Modify precast units according to manufacturer requirements.

### **3.4 BEDDING AND BACKFILL**

- A. Excavate the material under the box location in compliance with Section 02317 to a minimum depth of 4 inches.
- B. Provide a minimum of 4 inches of backfill with granular backfill borrow as specified in Section 02056.
- C. Compact bedding and backfill following Section 02324.
- D. A loose sand leveling course no greater than 2 inches in depth may be added in addition to the granular backfill borrow. If added, excavate the area to the appropriate depth to accommodate the backfill and leveling course.

### **3.5 INSTALLATION**

- A. Follow ASTM C 891. Comply with manufacturer installation guidelines. Inspect precast drainage structures for defects before lowering into trench.
- B. Repair or replace any defective, damaged or unsound concrete products.

- C. Close the joints tightly when applicable.
- D. Use a trench of adequate width in order to place and compact bedding material.
  - 1. Minimum outside width of trench: Outside width of concrete products plus 2 feet.
- E. Carefully lower concrete products into the trench with suitable equipment to prevent damage.
- F. Clean mating surfaces of all foreign materials such as dirt, mud, stones, etc. and apply proper joint sealing material where applicable.
- G. Do not lay precast drainage structure in trench that has water in the trench.

### 3.6 LIFTING DEVICE

- A. Provide precast structures with sufficient lifting points for a safe installation.
- B. Locate lifting devices to avoid interference with the reinforcing steel.
- C. Plug lift insert recesses with a 1:1 sand to cement grout mix. Finish flush with top and/or bottom surface of concrete.

### 3.7 TESTING

- A. Vacuum Testing – follow the test procedure outlined below:
  - 1. Vacuum test precast structures after assembly and prior to backfilling.
    - a. Form a seal between the vacuum base and the manhole rim/precast structure cover. Secure pipe plugs to prevent movement while the vacuum is drawn.
    - b. Draw a vacuum of 10 inches of mercury. Record the time for the vacuum to drop to 9 inches of mercury.
    - c. Passing drop rates for the time to drop to 9 inches are as follows:
 

<u>Diameter/Width</u>	<u>Time to Drop 1 inch Hg</u>
4 ft. / up to 4 ft.	30 seconds
5 ft. / up to 5 ft.	40 seconds
    - d. Make necessary repairs if the structure fails the test. Repairs and repair procedures must be acceptable to the Engineer.
    - e. Disassemble the manhole and replace the gaskets if preformed plastic gaskets are pulled out during the vacuum test.

- B. Repair and retest lines and manholes that fail the vacuum test until the structure passes the test.

END OF SECTION

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## Standards Committee Submittal Sheet

Name of preparer: Todd Jensen

Title/Position of preparer: State Bridge Engineer

Specification/Drawing/Item Title: Pipe, Pipe-Arch, Structural Plate Pipe, & Structural Pipe Arch

Specification/Drawing Number: 02610

### Enter appropriate priority level:

(See last page for explanation) N/A

Sheet not required on editorial or minor changes to standards. Check with Standards Section.

### NOTES:

1. All Submittal Sheets must be completed and sent to the Standards and Specifications Section by the Standards Committee suspense date as shown on their web page.  
(<http://www.udot.utah.gov/index.php/m=c/tid=303>)
2. The Preparer of the Submittal Sheet or the Standards Committee member (or authorized substitute) responsible for the submittal must be present at the Standards Committee meeting and capable of discussing and answering all questions related to the submittal. The item will be postponed to a later meeting if one of these people is not present.
3. Notify the Standards and Specifications Section immediately of any changes that impact the presentation to include absence of sponsor or delay in presentation.

Complete the following: (Use additional pages as needed.)

- A. Why? Detail the reason for changing the Standard (Specification or Drawing), what has initiated a new Standard, or what has caused a new or changed item of interest.

In the last standards committee meeting in August 2005, the method of payment for backfill of pipe was discussed. The question was asked, "Is backfill for pipe installation an item that is covered in the cost of a pipe?" The specification has been reviewed and nine other states were contacted to get feedback on how they have addressed this issue within their specifications.

- B. How is Measurement and Payment handled? Existing (from the measurement and payment document), modified, or new measurement and payment to be included with all Standard Specifications or Supplemental Specifications.

N/A.

- C. Stakeholder Notification for AGC and ACEC:

By email provide the AGC and ACEC Standards Committee member a copy of all pertinent information relating to the specification or drawing. Detail all responses below. Indicate if no comments were received.

Note: There is a two-week response time set for this item.

Refer to the Standards Committee Web site, Members page at <http://www.udot.utah.gov/index.php/m=c/tid=659> for the respective e-mail addresses.

AGC Comments: (Use as much space as necessary.)

N/A.

ACEC Comments: (Use as much space as necessary.)

N/A.

- D. Stakeholders? From the list provided, document the stakeholders contacted, detailing: the company, name of contact, how contacted (by phone, email, hard copy, or in person), concerns, and comments of the change. Stakeholders:

Note: There is a two-week response time set for this item. Allow Stakeholders two weeks to process and respond to coordination requests. All areas should try to complete review and comment as soon as possible but within two weeks.

In-house (for example, preconstruction, materials, construction, safety, design, maintenance) (Include all applicable in-house areas even if not listed above.)

Construction Engineers

N/A

Contractors (Any additional contacts beyond "C" above.)

N/A

Suppliers

N/A

Consultants (as required) (Any additional contacts beyond "C" above.)

N/A

FHWA (To be accomplished as part of the two-week process before submitting to the Standards and Specifications Section for inclusion on the Standards Committee agenda.) (This is in addition to the requirements of UDOT Policy 08A5-1, procedure 08A5-1.3.)

N/A

Others (as appropriate)

Nine states responded to our solicitation for information on this subject.

E. Minimum Sampling and Testing Guide (MS&T Guide)? (Consider all impacts and possible changes to the MS&T Guide during the preparation process. Coordinate with the Department Materials Engineer as appropriate. List all impacts and action taken.)

N/A

F. Costs? (Estimates are acceptable.)

1. Additional costs to average bid item price.

N/A

2. Operational (For example, maintenance, materials, equipment, labor, administrative, programming).

N/A

3. Life cycle cost.

N/A

G. Benefits? (Provide details that can be used to complete a Cost – Benefit Analysis.)  
(Estimates are acceptable.)

N/A

H. Safety Impacts?

N/A

I. History? Address issues relating to the current usage of the item and past reviews, approvals, and/or disapprovals.

Since 1992, the UDOT Standard Specifications have specified the payment for all items associated with pipe installation be included in the price/foot bid item for pipe.

## Priority Explanation

Enter the appropriate priority in the box on the first page of the document.

Priority 1 Upon posting, this impacts all projects in construction and design with a Change Order, Addenda, and immediate change to projects being advertised.

Priority 2 Upon posting, this impacts projects being advertised.

Priority 3 Upon posting, the approved standard takes effect **four weeks** later for projects being advertised.

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### Method of payment for pipe backfill for other state DOTs

State	Pay backfill with pipe	Pay Backfill additionally	Other
Ontario, Canada	√		
South Carolina	√		
Kansas	√		Special backfill noted on the plans
California	√		
Arkansas	√		Select Pipe Backfill is paid extra
Oklahoma			Depends on the pipe quantity – see email
New Mexico	√		
Alaska		√	See email for details
Virginia	√		

2610 specify the item includes “Materials and procedures for installing pipes”.

The measurement and payment is not specific on the inclusion, it states to pay for pipe by the lineal foot.

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## Standards Committee Submittal Sheet

Name of preparer: Richard Miller  
Title/Position of preparer: UDOT Preconstruction Engineer  
Specification/Drawing/Item Title: Passing Sight Distance Design Standard  
Specification/Drawing Number: \_\_\_\_\_

**Enter appropriate priority level:**

(See last page for explanation) 3

Sheet not required on editorial or minor changes to standards. Check with Standards Section.

**NOTES:**

1. All Submittal Sheets must be completed and sent to the Standards and Specifications Section by the Standards Committee suspense date as shown on their web page.  
(<http://www.udot.utah.gov/index.php/m=c/tid=303>)
2. The Preparer of the Submittal Sheet or the Standards Committee member (or authorized substitute) responsible for the submittal must be present at the Standards Committee meeting and capable of discussing and answering all questions related to the submittal. The item will be postponed to a later meeting if one of these people is not present.
3. Notify the Standards and Specifications Section immediately of any changes that impact the presentation to include absence of sponsor or delay in presentation.

Complete the following: (Use additional pages as needed.)

- A. Why? Detail the reason for changing the Standard (Specification or Drawing), what has initiated a new Standard, or what has caused a new or changed item of interest.

**Design Standard (Including OSR) – AASHTO  
Operational Pavement Markings - MUTCD**

UDOT has selected AASHTO as its standard. The Roadway Design Manual of Instruction uses AASHTO in setting passing sight distances. Traffic and Safety uses MUTCD as the warrant for placing no-passing zone pavement markings on completed highways. There is a significant difference in the distances.

A no-passing zone is defined in the MUTCD on the basis of the distance from which a driver can see a fixed object in the roadway. This definition does not account for vehicles moving toward the driver. The consideration of oncoming vehicles (as described in the AASHTO Green Book) significantly increases the sight distance required by a driver to perform a passing maneuver. For Additional information see pages 3B 7-8 of MUTCD and pages 117-124 of AASHTO, 2004, A Policy on Geometric Design of Highways and Streets.

- B. How is Measurement and Payment handled? Existing (from the measurement and payment document), modified, or new measurement and payment to be included with all Standard Specifications or Supplemental Specifications.  
Does not apply.

C. Stakeholder Notification for AGC and ACEC:

By email provide the AGC and ACEC Standards Committee member a copy of all pertinent information relating to the specification or drawing. Detail all responses below. Indicate if no comments were received.

Note: There is a two-week response time set for this item.

Refer to the Standards Committee Web site, Members page at <http://www.udot.utah.gov/index.php/m=c/tid=659> for the respective e-mail addresses.

AGC Comments: (Use as much space as necessary.)

ACEC Comments: (Use as much space as necessary.)

D. Stakeholders? From the list provided, document the stakeholders contacted, detailing: the company, name of contact, how contacted (by phone, email, hard copy, or in person), concerns, and comments of the change. Stakeholders:

Note: There is a two-week response time set for this item. Allow Stakeholders two weeks to process and respond to coordination requests. All areas should try to complete review and comment as soon as possible but within two weeks.

In-house (for example, preconstruction, materials, construction, safety, design, maintenance) (Include all applicable in-house areas even if not listed above.)

Construction Engineers – NA

Contractors – NA

Suppliers – NA

Consultants (as required) – NA

FHWA (To be accomplished as part of the two-week process before submitting to the Standards and Specifications Section for inclusion on the Standards Committee agenda.)

(This is in addition to the requirements of UDOT Policy 08A5-1, procedure 08A5-1.3.)

Others (as appropriate)

Preconstruction Engineers – MOI Review - completed

Robert Hull – need to e-mail when complete – e-mailed on 9/26/05

Richard Clarke – Maintenance – e-mailed on 9/26/05

E. Minimum Sampling and Testing Guide (MS&T Guide)? (Consider all impacts and possible changes to the MS&T Guide during the preparation process. Coordinate with the Department Materials Engineer as appropriate. List all impacts and action taken.)

F. Costs? (Estimates are acceptable.)

No Cost Benefits

1. Additional costs to average bid item price.
2. Operational (For example, maintenance, materials, equipment, labor, administrative, programming).
3. Life cycle cost.

G. Benefits? (Provide details that can be used to complete a Cost – Benefit Analysis.) (Estimates are acceptable.)

H. Safety Impacts?

Improved safety by providing safer passing sight distances.

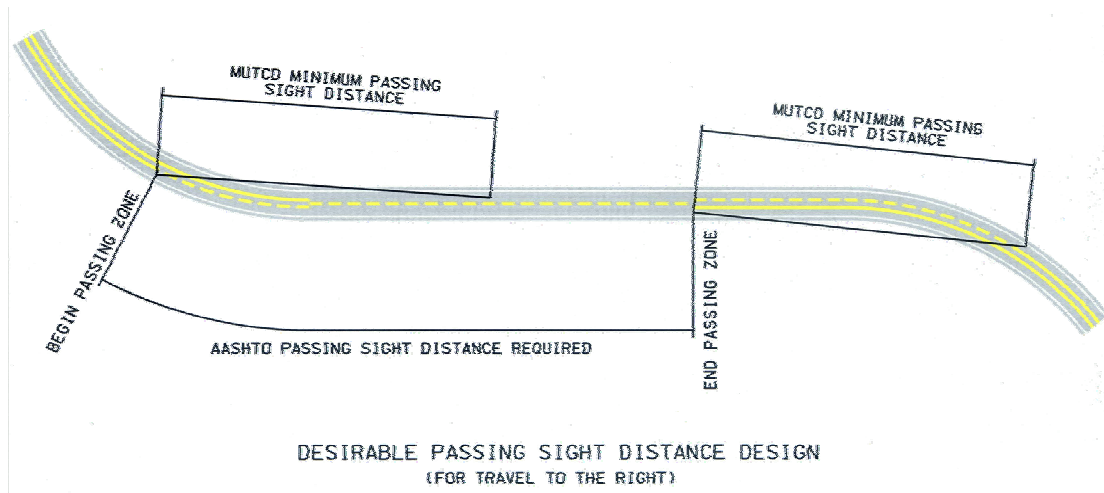
I. History? Address issues relating to the current usage of the item and past reviews, approvals, and/or disapprovals.

The incorrect application of MUTCD passing sight distance was identified as an issue on US 6 during a safety study. One example of the incorrect application of passing sight distance occurred in the Red Narrows section (RP 189). In a section with a posted speed of 60 mph, there was a 940-foot tangent section with a 1763-foot radius curve on the west end and a 2292-foot radius curve on the east end that was stripped as a passing zone. The west curve has a maximum design speed of about 66 mph and the east curve has a design maximum speed of about 73 mph. MUTCD has a minimum passing sight distance of 1000 feet, which was used to justify the roadway section as a passing zone. However, AASHTO requires 2383 feet to safely pass a vehicle in the speed range of 60 – 70 mph.

Accidents were occurring at the curves at each end of the passing zone. These accidents were due either to a high rate of speed when entering the curve or from collisions with opposing vehicles that appeared around the curve before the pass could be completed. The excessive speed was required to successfully pass within the passing zone. The passing zone met the 1000-foot passing sight distance requirement of MUTCD. However, it did not meet the AASHTO passing sight distance of 2383 feet.

UDOT Roadway Design uses AASHTO limits for passing sight distance. A desirable application of MUTCD criteria and AASHTO criteria (see figure below) can be achieved with a combination

both criteria using engineering judgment. The passing sight distance as defined by AASHTO must be available in order for a vehicle to safely pass another vehicle and must be available between the beginning and ending locations determined by the MUTCD criteria. If the AASHTO passing sight distance is not available between the beginning location and the end location, no passing should be allowed. However, the required AASHTO passing sight distance may be shortened using engineering judgment in locations where the lack of passing zones severely affects level-of-service, such as in canyon areas.



In no case should the available passing sight distance be less than that required by MUTCD. As part of engineering judgment used to determine passing zones, the designer should be aware that geometric constraints outside the actual passing zone may reduce the safety of the passing zone.

The minimum passing sight distance for a two-lane road is about four times greater than the minimum stopping sight distance at the same design speed. To provide the greater passing sight distances, clear sight areas on the insides of curves must be considerably wider. Often this is not practicable. It is necessary to acknowledge and accept no-passing zones.

When horizontal curves and vertical curves occur at the same general location, the sight distances for each must be considered together. At least the minimum stopping sight distance must be provided for each. But efforts to provide passing sight distance for one might be completely negated by a no-passing zone situation for the other.

Caution and engineering judgment should be used when designing a passing zone in a section of roadway where there are two opposing lanes. These have typically been used in downhill sections of roadway where a climbing or passing lane has been provided in the opposing direction. Even with adequate passing sight distance, drivers in the single lane attempting to pass could be confronted with an oncoming vehicle that suddenly moves from the right lane into the left lane for various reasons, particularly for passing a slow moving vehicle. Where passing zones are provided in a three-lane section, the two lane direction should be signed with "KEEP RIGHT EXCEPT TO PASS." Safety would be increased if no passing was allowed in these situations or separate passing lanes are provided.

## Priority Explanation

Enter the appropriate priority in the box on the first page of the document.

- |            |   |
|------------|---|
| Priority 1 | Upon posting, this impacts all projects in construction and design with a Change Order, Addenda, and immediate change to projects being advertised. |
| Priority 2 | Upon posting, this impacts projects being advertised.   |
| Priority 3 | Upon posting, the approved standard takes effect <b>four weeks</b> later for projects being advertised.   |

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## Standards Committee Submittal Sheet

Name of preparer: Barry Axelrod and Richard Miller

Title/Position of preparer: Technical Writer, Preconstruction Engineer

Specification/Drawing/Item Title: Deviating From Standards

Specification/Drawing Number: N/A

**Enter appropriate priority level:**

(See last page for explanation) 3

Sheet not required on editorial or minor changes to standards. Check with Standards Section.

### NOTES:

1. All Submittal Sheets must be completed and sent to the Standards and Specifications Section by the Standards Committee suspense date as shown on their web page.  
(<http://www.udot.utah.gov/index.php/m=c/tid=303>)
2. The Preparer of the Submittal Sheet or the Standards Committee member (or authorized substitute) responsible for the submittal must be present at the Standards Committee meeting and capable of discussing and answering all questions related to the submittal. The item will be postponed to a later meeting if one of these people is not present.
3. Notify the Standards and Specifications Section immediately of any changes that impact the presentation to include absence of sponsor or delay in presentation.

Complete the following: (Use additional pages as needed.)

- A. Why? Detail the reason for changing the Standard (Specification or Drawing), what has initiated a new Standard, or what has caused a new or changed item of interest.

The UDOT has established minimum standards of practice by adopting AASHTO Standards, publishing UDOT Standard Specifications for Road and Bridge Construction, and publishing UDOT Standard Drawings.

A deviation from approved UDOT Standards may be acceptable when conditions exist that prevent one from meeting the standard. No practice exists to allow deviation.

This presentation and supporting documentation will help determine when it is allowable to deviate from UDOT Standards, who has the approval authority, and what documentation is required.

Examples of a deviation from UDOT Standards:

- Special Provisions
- Detail Drawings
- Design Exceptions
- Design Waivers
- Traffic Control Requirements
- Six inch paint line vs four inch paint line

Water base paint specification  
Painted cattle guard  
Precast concrete constant slope barrier  
Material acceptance  
Black paint on concrete with white skip line

The UDOT Standards Section was asked to provide a resolution to the Deviation from Standards issue.

Refer to Attachment 1 for a recommended matrix of items, required approval levels, and notes.

**Alternatives:**

1. Use (modify) existing Design Exception/Design Waiver process. Modify the existing process to incorporate deviation from standards.
2. Create new "Deviation From Standards Processes" form. (See Attachment 2)
3. Continue business as usual.

- B. How is Measurement and Payment handled? Existing (from the measurement and payment document), modified, or new measurement and payment to be included with all Standard Specifications or Supplemental Specifications.

Not applicable for this part of the process. M and P may change if a Standard is modified or a new one created.

- C. Stakeholder Notification for AGC and ACEC:

By email provide the AGC and ACEC Standards Committee member a copy of all pertinent information relating to the specification or drawing. Detail all responses below. Indicate if no comments were received.

Note: There is a two-week response time set for this item.

Refer to the Standards Committee Web site, Members page at <http://www.udot.utah.gov/index.php/m=c/tid=659> for the respective e-mail addresses.

AGC Comments: (Use as much space as necessary.)

Not submitted for review at this time.

ACEC Comments: (Use as much space as necessary.)

Not submitted for review at this time.

- D. Stakeholders? From the list provided, document the stakeholders contacted, detailing: the company, name of contact, how contacted (by phone, email, hard copy, or in person), concerns, and comments of the change. Stakeholders:

Note: There is a two-week response time set for this item. Allow Stakeholders two weeks to process and respond to coordination requests. All areas should try to complete review and comment as soon as possible but within two weeks.

In-house (for example, preconstruction, materials, construction, safety, design, maintenance) (Include all applicable in-house areas even if not listed above.)

An email survey was sent to Jesse Sweeten, Marge Sanchez, Thom LeHolm, Brent DeYoung, Randy Jefferies, Ed Rock, Tim Rose, Brent Schvaneveldt, Jason Davis, Merrell Jolley, Phil Huff, Clark Mackay, and Karl Verhaeren with copies to Stan Burns, Richard Miller, Patti Charles, and Steve Anderson.

Responses following each question:

**1) What is your opinion about having all Special Provisions that replace, modify, or supplement a Standard approved at a higher level?**

Karl V (R4)

I don't think special provisions that modify a supplemental or standard and that are unique to a project need to be approved at a level beyond the design and review process within the Regions. I don't believe there's any need for approval at a higher level, and I think approval at a higher level would add nothing beyond a more cumbersome process, taking up valuable resources outside the Region and frustrating the designers and Project Managers within the Region.

Recalling the reason behind the posting of special provisions under "Regions", it was at least partly related to some concerns from the AGC, that were in reality, principally due to blunders in the materials (aggregates) area, along with a couple of projects where R4 used some lane rental specifications that some contractors found offensive. Eventually, the Indian Employment Preference specials for R3 and R4 found their way to this posting. I'm not sure there's any particular reason the MOT special provision for Region 2 is posted, beyond that to insure that all R2 designers use the same special provision. It seems to me there may be some other ways to accomplish this. The Indian Employment Preference special provisions could probably reside elsewhere as well, if there's any recognized advantage to the elimination of posting "Region Special Provisions", which I would support.

Brent DeYoung (R1)

Why? Is there a problem? My concern would be the increase in time to review and obtain the approval from someone who may likely be unfamiliar with the project specifics. I would prefer to see guidelines for changes rather than an approval at a higher level.

Brent Schvaneveldt (R3)

I don't think we need to have special provisions approved at a higher level. The person signing and stamping the plans is responsible.

Ed Rock (R2)

Leave it alone. I agree with Brent. Those who stamp the plans should be empowered to make the changes. If we require the Special Provisions to be approved at a higher level, it will slow down the process, & discourage creativity & innovation. Under the current process, all specs are thoroughly reviewed during PS&E by a squad leader, a RE, and usually the Region Preconstruction Engineer....so in effect we already have an informal system in place to have specials review by independent sources and at a higher level than the designer.

Tim Rose (R2)

No, the current system we have in place works just fine.

**2) What level do you recommend?**

Karl V (R4)

Region level, for special provisions unique to projects or unique to selective projects within the Regions.

Brent DeYoung (R1)

Project Manager level.

Brent Schvaneveldt (R3)

N/A

Ed Rock (R2)

N/A

Tim Rose (R2)

N/A

**3) Should the Standards Committee Submittal Sheet process or something similar be used to review and approve Special Provisions?**

Karl V (R4)

I'm not sure. But now I'm referring to special provisions that are envisioned or expected to be proposed to become supplemental specifications, and consequently new standards. At some time, I believe the Standards Committee recognized the benefit in having proposed supplemental specifications actually used, or proven, in some contracts prior to submitting them to Standards. I believe this is a wise course of action and is something I had suggested for the current 02610 Standard at the time it was approved. In this particular situation there had been a special provision used for quite some time, but when the specification came to the committee, there were significant changes beyond that

contained in the special provision that had been in use. This process requires a period of time and would obviously not apply to supplementals that are determined to be time critical (high priority), those dealing with safety issues, or supplemental specifications that correct serious "defects" in the standards.

Brent DeYoung (R1)

No. The Standards committee should review and approve "standards."

Brent Schvaneveldt (R3)

No

Ed Rock (R2)

Absolutely not. Again this would bog down the process and stifle innovation. Some modifications to Standard Specifications at the Region Level due to local conditions is a healthy process that helps us experiment and test out new ideas.

Tim Rose (R2)

No, we have an adequate process in place already.

<b>Recommendations Summary of the Above Region Inputs</b>
Don't approve at a level beyond the design and review process within the Regions.
Approval at a higher level would increase the time for review and approval. Slows down the process, and discourage creativity and innovation.
Guidelines for changes rather than an approval at a higher level.
The person signing and stamping the plans should be responsible.
Maintain at the region level (Project Manager), for special provisions unique to projects or unique to selective projects within the Regions.

Construction Engineers

See above

Contractors (Any additional contacts beyond "C" above.)

None

Suppliers

None

Consultants (as required) (Any additional contacts beyond “C” above.)

None

FHWA (To be accomplished as part of the two-week process before submitting to the Standards and Specifications Section for inclusion on the Standards Committee agenda.) (This is in addition to the requirements of UDOT Policy 08A5-1, procedure 08A5-1.3.)

None

Others (as appropriate)

None

- E. Minimum Sampling and Testing Guide (MS&T Guide)? (Consider all impacts and possible changes to the MS&T Guide during the preparation process. Coordinate with the Department Materials Engineer as appropriate. List all impacts and action taken.)

Not applicable unless there is a future change to a Standard.

- F. Costs? (Estimates are acceptable.)

Costs may vary depending on the approved process and the resultant impact on changing or modifying standards or deviating from standards.

- G. Benefits? (Provide details that can be used to complete a Cost – Benefit Analysis.) (Estimates are acceptable.)

The benefits are hard to quantify but by reducing deviations to only those needed to meet project scope the benefits should be more standardized projects and possibly reduced lawsuits. Accidents and incidents relating to improper or incorrect standards should be reduced or eliminated.

- H. Safety Impacts?

The overall result of not deviating from standards should be improved safety for the motoring public as well as construction and maintenance workers.

- I. History? Address issues relating to the current usage of the item and past reviews, approvals, and/or disapprovals.

Previous use of non-standard products and methods have resulted in at least one lawsuit.

## Priority Explanation

Enter the appropriate priority in the box on the first page of the document.

- |            |   |
|------------|---|
| Priority 1 | Upon posting, this impacts all projects in construction and design with a Change Order, Addenda, and immediate change to projects being advertised. |
| Priority 2 | Upon posting, this impacts projects being advertised.   |
| Priority 3 | Upon posting, the approved standard takes effect <b>four weeks</b> later for projects being advertised.   |

### Attachment 1 - Matrix, Table of Items and Required Action

Item	Approval Location	Required Approval	Notes
Special Provisions	Region	Region Preconstruction Engineer	Project scope related or the special provision adds a new section.
Special Provisions	Region	Region Director	Any change that entirely or in part modifies or deletes a Standard or Supplemental Specification.
Detailed Drawings	Region	Region Preconstruction Engineer	Project scope related or the special provision adds a new drawing detail.
Detailed Drawings	Region	Region Director	Any change that entirely or in part modifies or deletes a Standard Drawing.
Design Exceptions	Central	Preconstruction Engineer	Existing Process
Design Waivers	Central	Preconstruction Engineer	Existing Process
Materials Acceptance	Central	Materials Engineer	Deviation Approval Required
Experimental Products and Methods	Central	New Products Panel and Research Engineer	Research Division

## Attachment 2 - UDOT Standards/Deviation Form

Note: Any product or practice that deviates from the UDOT accepted standard, except as defined in the Matrix, Table of Items and Required Action, must have the UDOT Standards/Deviation Form submitted to the appropriate level for review and approval.

Item	Action or Details
UDOT Standards:	
Proposed Deviation:	
Explanation of Deviation:	
Safety Impacts:	
Cost/Benefit:	
Measurement and Payment:	
Material Acceptance:	
Associated Risks:	

Coordination and Approval Signatures: (Indicate approval or disapproval in the “Comments” column. Additional comments needed for all disapprovals.)

**Name and Position**

**Date**

**Comments**

Approved Disapproved

Project Designer

Approved Disapproved

Project Manager

Approved Disapproved

Region Preconstruction Engineer

Approved Disapproved

Region Director

Approved Disapproved

Standards Committee Chairman

Approved Disapproved

Deputy Director

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## Standards Committee Submittal Sheet

Name of preparer: Abdul Wakil

Title/Position of preparer: Technology Transfer Engineer

Specification/Drawing/Item Title: Painted Cattle Guard and Rumble Strip

Specification/Drawing Number:

**Enter appropriate priority level:**

(See last page for explanation)          **To be presented with John Leonard.**

Sheet not required on editorial or minor changes to standards. Check with Standards Section.

### NOTES:

1. All Submittal Sheets must be completed and sent to the Standards and Specifications Section by the Standards Committee suspense date as shown on their web page.  
(<http://www.udot.utah.gov/index.php/m=c/tid=303>)
2. The Preparer of the Submittal Sheet or the Standards Committee member (or authorized substitute) responsible for the submittal must be present at the Standards Committee meeting and capable of discussing and answering all questions related to the submittal. The item will be postponed to a later meeting if one of these people is not present.
3. Notify the Standards and Specifications Section immediately of any changes that impact the presentation to include absence of sponsor or delay in presentation.

Complete the following: (Use additional pages as needed.)

- A. Why? Detail the reason for changing the Standard (Specification or Drawing), what has initiated a new Standard, or what has caused a new or changed item of interest.

Currently we do not have a policy in place for cattle guards (Painted and Metal).

The following will be covered for Painted Cattle Guard and Rumble Strip:

- Background Information
- Recommendations
- Recently Completed Studies
- Additional Information

The original item for Rumble Strips was for a standard drawing. That was changed to a policy relating to this subject. A QIT is still working on this policy. (This paragraph was added by the Standards Section for additional background.)

- B. How is Measurement and Payment handled? Existing (from the measurement and payment document), modified, or new measurement and payment to be included with all Standard Specifications or Supplemental Specifications.

C. Stakeholder Notification for AGC and ACEC:

By email provide the AGC and ACEC Standards Committee member a copy of all pertinent information relating to the specification or drawing. Detail all responses below. Indicate if no comments were received.

Note: There is a two-week response time set for this item.

Refer to the Standards Committee Web site, Members page at <http://www.udot.utah.gov/index.php/m=c/tid=659> for the respective e-mail addresses.

AGC Comments: (Use as much space as necessary.)

**N/A at this time.**

ACEC Comments: (Use as much space as necessary.)

**N/A at this time.**

D. Stakeholders? From the list provided, document the stakeholders contacted, detailing: the company, name of contact, how contacted (by phone, email, hard copy, or in person), concerns, and comments of the change. Stakeholders:

Note: There is a two-week response time set for this item. Allow Stakeholders two weeks to process and respond to coordination requests. All areas should try to complete review and comment as soon as possible but within two weeks.

In-house (for example, preconstruction, materials, construction, safety, design, maintenance) (Include all applicable in-house areas even if not listed above.)

**N/A at this time.**

Construction Engineers

Contractors (Any additional contacts beyond "C" above.)

Suppliers

Consultants (as required) (Any additional contacts beyond "C" above.)

FHWA (To be accomplished as part of the two-week process before submitting to the Standards and Specifications Section for inclusion on the Standards Committee agenda.) (This is in addition to the requirements of UDOT Policy 08A5-1, procedure 08A5-1.3.)

Others (as appropriate)

- E. Minimum Sampling and Testing Guide (MS&T Guide)? (Consider all impacts and possible changes to the MS&T Guide during the preparation process. Coordinate with the Department Materials Engineer as appropriate. List all impacts and action taken.)

**N/A at this time.**

- F. Costs? (Estimates are acceptable.)

**No information provided.**

1. Additional costs to average bid item price.
2. Operational (For example, maintenance, materials, equipment, labor, administrative, programming).
3. Life cycle cost.

- G. Benefits? (Provide details that can be used to complete a Cost – Benefit Analysis.) (Estimates are acceptable.)

**No information provided.**

- H. Safety Impacts?

**No information provided.**

- I. History? Address issues relating to the current usage of the item and past reviews, approvals, and/or disapprovals.

**No information provided.**

## **Priority Explanation**

Enter the appropriate priority in the box on the first page of the document.

- |            |   |
|------------|---|
| Priority 1 | Upon posting, this impacts all projects in construction and design with a Change Order, Addenda, and immediate change to projects being advertised. |
| Priority 2 | Upon posting, this impacts projects being advertised.   |
| Priority 3 | Upon posting, the approved standard takes effect <b>four weeks</b> later for projects being advertised.   |

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## **Action Item Update for October 27, 2005 Standards Committee Meeting**

(As of October 12, 2005)

**Item 1, Rumble Strips:** John Leonard indicated they were still working on the policy. This item was originally opened June 27, 2002. **Target date now December 2005.** Research indicated they have information to present. Item to be covered as part of the October agenda with a discussion on both Rumble Strips and Painted Cattle Guard. The Painted Cattle Guard Action Item was originally closed during the August meeting, with tracking under the Open Range Cattle item.

**Item 2, New Drawing of Four-Legged Intersection:** John Leonard said they are looking at a three-legged intersection first. When that is complete the original item will be looked at. This item was originally opened August 28, 2003. **Target date now February 2006.**

**Item 3, Traffic Barriers (Median Barrier Selection Process):** This item was to be covered on the October agenda but was not ready. Tim indicated he was still waiting for more feedback. The selection process has been reviewed by FHWA and Traffic and Safety regarding the wider medians and they have suggested wording to deal with the issue. The overall document has been sent to the regions and ACEC for comment. **Target date was October 2005. Needs to be updated.**

**Item 4, Open Range Cattle Issues:** Robert Hull indicated more work is needed on this and that they were working toward the December 2005 target date. Research indicated they have information on Rumble Strips and Painted Cattle Guard. Item to be covered as part of the October agenda with a discussion on both Rumble Strips and Painted Cattle Guard. **Target date is December 2005.**

**Item 5, Section 00555, Prosecution and Progress, Liquidated Damages Table letter to FHWA indicating the information has been reviewed but that no change is being recommended:** No information received in response to an e-mail request sent on July 27th and opened on August 4th. On September 28, 2005, Todd Emery indicated they still had not seen the letter.

**Item 6, Supplemental Specification 00725M, Scope of Work:** This item is on the October agenda. **New target date is October 2005.**

**Item 7, Deviating from Standards:** This item is on the October agenda. **New target date is October 2005.**

**Item 8, Median Cable Barrier:** This was transferred to John Leonard. He is working on a drawing. No target date has been established.

**Item 9, Supplemental Specification 00555M, Prosecution and Progress, Limits of Operation:** According to John Leonard this item is still being reviewed for consideration under a different section or by a different method. **The target date is unknown.**

**Item 10, Pipe Backfill:** This item is on the October agenda. **Target date is October 2005.**

**End of Agenda Package**